44754

National Library of Canada
Canadian Theses Division
Ottawa, Canada
K1A 0N4

Bibliothèque nationale du Canada
Division des thèses canadiennes

PERMISSION TO MICROFILM — AUTORISATION DE MICROFILMER

- Please print or type — Écrire en lettres moulées ou dactylographier

Full Name of Author — Nom complet de l'auteur
HYUHA, Abdu Mukwanason

Date of Birth — Date de naissance 15th August 1945	Country of Birth — Lieu de naissance UGANDA

Permanent Address — Résidence fixe
c/o MR. Y. B. WADEMBERE
P. O. Box 9446
KAMPALA, Uganda, East Africa

Title of Thesis — Titre de la thèse
Financial Intermediaries and the Saving-Investment Process in Uganda.

University — Université
UNIVERSITY OF ALBERTA

Degree for which thesis was presented — Grade pour lequel cette thèse fut présentée
DOCTOR OF PHILOSOPHY

Year this degree conferred — Année d'obtention de ce grade 1980	Name of Supervisor — Nom du directeur de thèse PROF KANHAYA L. GUPTA

Permission is hereby granted to the NATIONAL LIBRARY OF CANADA to microfilm this thesis and to lend or sell copies of the film.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

L'autorisation est, par la présente, accordée à la BIBLIOTHÈQUE NATIONALE DU CANADA de microfilmer cette thèse et de prêter ou de vendre des exemplaires du film.

L'auteur se réserve les autres droits de publication; ni la thèse ni de longs extraits de celle-ci ne doivent être imprimés ou autrement reproduits sans l'autorisation écrite de l'auteur.

Date 24th April 1980	Signature

NL-91 (4/77)

National Library of Canada
Collections Development Branch

Canadian Theses on
Microfiche Service

Bibliothèque nationale du Canada
Direction du développement des collections

Service des thèses canadiennes
sur microfiche

NOTICE

The quality of this microfiche is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us a poor photocopy.

Previously copyrighted materials (journal articles, published tests, etc.) are not filmed.

Reproduction in full or in part of this film is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30. Please read the authorization forms which accompany this thesis.

THIS DISSERTATION
HAS BEEN MICROFILMED
EXACTLY AS RECEIVED

AVIS

La qualité de cette microfiche dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de mauvaise qualité.

Les documents qui font déjà l'objet d'un droit d'auteur (articles de revue, examens publiés, etc.) ne sont pas microfilmés.

La reproduction, même partielle, de ce microfilm est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30. Veuillez prendre connaissance des formules d'autorisation qui accompagnent cette thèse.

LA THÈSE A ÉTÉ
MICROFILMÉE TELLE QUE
NOUS L'AVONS REÇUE

Ottawa, Canada
K1A 0N4

NL-339 (Rev. 8/80)

THE UNIVERSITY OF ALBERTA

FINANCIAL INTERMEDIARIES AND THE SAVING-INVESTMENT PROCESS IN UGANDA

©

by

A. MUKWANASON HYUHA

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF ECONOMICS

EDMONTON, ALBERTA
SPRING, 1980

THE UNIVERSITY OF ALBERTA
FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled FINANCIAL INTERMEDIARIES AND THE SAVING-INVESTMENT PROCESS IN UGANDA submitted by A. MUKWANASON HYUHA in partial fulfilment of the requirements for the degree of DOCTOR OF PHILOSOPHY.

Supervisor

External Examiner

Date...April 11.........1980.

DEDICATION

DEDICATED TO THE MEMORIES OF
MY FATHER, THE LATE A. WANDERA MUKWANA,
MY MOTHER, MRS. F. MUGOYA MUKWANA,
AND
MY BROTHER, THE LATE Z. MUKWANA GULOBA
WITHOUT WHOM MY ACADEMIC AND OTHER STRUGGLES
WOULD HAVE BEEN DOOMED TO FAILURE.

FATHER AND BROTHER, MAY YOUR SOULS REST IN PEACE.

ABSTRACT

This study examines critically the part played by financial intermediaries in the development process in Uganda, particularly through their impact on the domestic saving-investment process during the period 1950-1972. In the course of the study, the development of the financial superstructure, determinants of saving and investment, and the role of financial intermediaries in the mobilization of savings, the financing of investment, and the monetization of the Ugandan economy are examined.

The analysis of the role of financial intermediaries in the saving-investment process in the country is carried out both theoretically and empirically. The qualitative analysis is done by means of models formulated for the purpose. Two types of models are formulated: single equation and simultaneous equation models. Most of the single equation models are based on traditional (Keynesian and post-Keynesian) theories of saving and investment. The simultaneous equation models are based on both McKinnon's work and various other, fairly recent, studies of the saving-investment processes in developing countries.

The empirical or quantitative analysis is carried out econometrically. The analyses take the form of tabular presentations. The thesis contains eighteen tables depicting the structure of the Ugandan economy, the nature of financial institutions in Uganda, the development of the country's real infrastructure and financial superstructure, and the nature of the resource outflows from the country. The analyses also take the form of presentations and descriptions of tables of regression results of the single equation and simultaneous equation models. In addition, a discussion of the econometric problems encountered at the estimation stage is undertaken.

The main hypothesis of this study is that financial intermediaries enhance the development process in developing countries through their impact on saving-investment processes. The statistical and econometric analyses generated overwhelming evidence in support of this hypothesis in the case of Uganda. Financial intermediation was found to be a statistically significant determinant of both the saving and investment rates in the country, irrespective of whether single equation or simultaneous equation models were used. However, the saving and investment elasticity multipliers with respect to financial intermediation or development were found to be less than unity. Those with respect to income, foreign capital inflows, and interest rates--to mention a few of the determinants of saving and investment other than financial intermediation--were also less than one. Further, financial intermediation was found to be both supply-leading and demand-following. It influences and is, in turn, influenced by the saving-investment process. In addition, the Mckinnon complementarity hypothesis appears to obtain in Uganda.

Money and physical capital are complementary, rather than substitutable.

As financial intermediation is an important determinant of both the saving rate and the investment rate in Uganda, it is appropriate that future development policies for the country emphasize and encourage financial development. Thus, both financial deepening (the intensive margin) and financial widening (the extensive margin) should be enhanced in the country. Finally, as the McKinnon approach appears to apply to the country--an approach that, among other things, advocates non-interference in the financial markets--future development should also discourage any form of financial repression, that is, the tendency to keep interest rates below their equilibrium levels.

ACKNOWLEDGEMENTS

My sincere thanks are due to Professor Kanhaya L. Gupta, my thesis supervisor. The thesis could not have been completed without the sympathetic advice and acute criticisms provided by him at various stages of thesis preparation.

I also wish to extend my deep gratitude to Professors Milton F. Bauer and Terrence S. Veeman who, as members of my supervision committee, also provided me with ready advice and discerning comments during the course of the study; and to my external examiner, Professor Kenji Okuda of Simon Fraser University, and Professor Cliffe Hickey of the Department of Anthropology, University of Alberta.

The burden of work has fallen on my wife, Shuwu Hyuha. She has been a constant source of encouragement. She also assisted me in the typing and organization of the final draft of the thesis and in the compilation of various tables in the thesis. My apologies are due to my two-year old daughter, Mugoya, who received less paternal attention than she deserved from me during the gestation period of the thesis.

Countless others have also contributed, not least the following: the members of the Research Department of the Bank of Uganda; Mr. Y.B. Wadembere of the Bank of Uganda; Mr. Y. Were of the National Insurance Corporation; the Uganda National Research Council; Mrs. Massy M.S. Musana of Makerere University; the late Mr. Z.M. Guloba of Nkoma

Secondary School; Mr. Owachi of the Statistics Division of the Bank of Uganda; Miss Sayeeda Bano of Simon Fraser University (with whom I have discussed several parts of the thesis); different typists, on whom the burden of typing various drafts of the thesis has fallen; and various professors and fellow graduate students in my department, who aided me in various ways.

Further, the thesis could not have been completed without the financial assistance from the Canadian Government and the Department of Economics, University of Alberta. In conjunction with the Uganda Government, the Canadian Commonwealth Scholarship and Fellowship Administration selected me for a Commonwealth scholarship, which I held for five years (1974-1979). The Department of Economics supported me finacially for four months following the expiry of the scholarship.

Finally, I thank the Uganda Government for having recommended me for the Commonwealth scholarship and for having financed all my post-secondary education. I also owe an everlasting debt to my parents who went through all types of financial and other hardships just to enable me to go through school.

TABLE OF CONTENTS

CHAPTER PAGE

I. INTRODUCTION 1
   A. Problems 1
   B. Objectives of the Study 6
   C. Analyses and Hypotheses 7
   D. The Scope of the Study 8
   E. Format of the Thesis 9
II. THE STRUCTURE OF THE UGANDAN ECONOMY 12
   A. Agriculture 16
   B. Industry 21
   C. The Foreign Sector 25
   D. The Public Sector 35
III. FINANCIAL INSTITUTIONS IN UGANDA 38
   A. The Monetary Authority 38
      The East African Currency Board, 1919-1966..39
      The Bank of Uganda 41
   B. Commercial Banks 47
      Organization 49
      The Resources of the Banks 50
      Lending 53
      Liquidity of Banks 57
      Interbank Relations 59
      Expatriate versus Indigenous Banks 63
   C. Non-bank Financial Institutions in Uganda 64

Development-Finance Parastatal Bodies 64
Insurance Companies and Other Credit Institutions 69
D. Financial Markets in Uganda 73
The Money Market 73
The Capital Market 75
IV. THE SAVING-INVESTMENT PROCESS, FINANCIAL INTERMEDIATION, AND FINANCIAL DEVELOPMENT IN UGANDA 77
A. The Saving-Investment Process 78
Saving, Investment, and Financial Intermediation 78
The Process 80
The Saving-Investment Process in Uganda, 1950-1976 82
Functions of Financial Intermediaries 87
B. The Ugandan Institutional Framework for Financing Development 90
Financing the Government Sector 90
Financing the Rural Sector 91
Financing Industrial Development 93
Housing and Other Finance 94
C. Measuring Financial Intermediation 95
Financial Assets of Instruments 95
The Measures 97
Desirable Properties for the Measures 100
Financial Development in Uganda, 1950-1976 100
V. FINANCIAL INTERMEDIATION AND THE SAVING-INVESTMENT PROCESS IN UGANDA: THEORETICAL ANALYSES OF SINGLE EQUATION MODELS ..106
A. Theoretical Determinants of Saving 107

Income 108

The rate of Interest 113

Dependency Ratios 114

Foreign Capital Inflows 115

Taxation 116

Financial Intermediation 117

Other Economic Factors 118

Non-economic Factors 119

A General Theory of Saving 119

B. Theoretical Determinants of Investment 121

C. A Model of Financial Development and Capital Formation 125

D. Financial Institutions and "Leakages" 128

E. Financial Intermediation and Monetization 129

VI. FINANCIAL INTERMEDIATION AND THE SAVING-INVESTMENT PROCESS IN UGANDA: A THEORETICAL ANALYSIS OF SIMULTANEOUS EQUATION MODELS 131

A. Money and Physical Capital: The McKinnon Approach 134

B. Model I: A Simultaneous Equation Model of The Saving-Investment Process 143

C. Model II: A Simultaneous Equation Model Embodying the Complementarity Hypothesis 151

VII. FINANCIAL INTERMEDIATION AND THE SAVING-INVESTMENT PROCESS IN UGANDA: AN ECONOMETRIC ANALYSIS 157

A. The Data 157

National Saving 158

Financial Data 159

Some Shortcomings of the Data 160

B. Estimation Procedures and Problems 161

Structural Change During Fiscal Year 1972/1973 163

C. Estimation of Singe Equation Models: Empirical Determinants of Saving in Uganda ...165

The Absolute Income Hypothesis 165

The Permanent Income Hypothesis 171

Financial Intermediation and Saving in Uganda 174

D. Single Equation Models: Empirical Determinants of Investment in Uganda 177

E. Single Equation Estimation: Some Other Issues Concerning Financial Intermediation and Development in Uganda 182

"Leakages" 182

Monetization 183

F. Model I: A Simultaneous Equation Model of The Saving-Investment Process in Uganda 187

The Saving Rate Equation 190

The Rate of Growth of Real Income Equation 191

The Financial Intermediation Equation 193

The Real Per Capita Income Equation 194

The Investment Rate Equation 195

The Reduced Form of the Model 198

Elasticity Multipliers 200

G. Model II: A Simultaneous Equation Model Embodying the Complementarity Hypothesis 203

Impact Multipliers 209

Elasticity Multipliers 211

H. Comparing Single Equation with Simultaneous Equation Results 213

I. Testing for Structural Change 216

VIII. CONCLUSION 220
A. Summary 220
B. Limitations and Qualifications 224
C. Policy Implications of the Study 225
Saving and Investment 225
Statistics 226
Lending to the Government 227
Other Policy Implications 227
SELECTED BIBLIOGRAPHY 228
APPENDIX A1: MAIN DATA SOURCES 243
APPENDIX A2: SINGLE EQUATION MODELS: REGRESSION RESULTS BASED ON NOMINAL VARIABLES 246

LIST OF TABLES

TABLE PAGE

2-1 National and Per Capita Income (GDP) for Uganda in Current and Constant (1966) Prices, 1950-1976. 13

2-2 Percentage Distribution of GDP at Factor Cost and in Current Prices, 1954-1976 17

2-3 Growth Rates of Some Sectors and Variables in the Ugandan Economy, 1954-1976 18

2-4 The Relative Importance of the Subsectors of Industry in Uganda, 1954-1976 23

2-5 Some Characteristics of the Foreign Sector of the Ugandan Economy, 1955-1976 27

2-6 The Relative Contribution of the Major Export Commodities to the Total Value of Uganda's Domestic Exports, 1955-1975 29

2-7 Percentage Distribution of Uganda's Retained Imports by End-Use, 1957-1975 31

2-8 Some Characteristics of Uganda's Foreign Trade: Trade Indices, 1957-1976 32

3-1 Bank of Uganda: Assets and Liabilities, 1966-1972 (End of Period Data) 44

3-2 Commercial Banks in Uganda: Assets, 1950-1973 51

3-3 Commercial Banks in Uganda: Liabilities, 1950-1973 52

3-4 Commercial Bank Sectoral Loans and Advances as Percentages of Total Loans and Advances, 1960-1972 55

3-5 Percentages of Commercial Bank Loans at Various Interest Rates for Different Types of Business, December 1972 58

3-6 Uganda's Commercial Banks' Liquidity Position, 1969-1973 60

3-7 Activities of the National Insurance Corporation (Uganda), 1965-1973 72

4-1 The Saving-Income and Investment-Income Ratios in Uganda, 1950-1976 84

4-2 Some Forms Savings Take in Uganda, 1950-1976 86

4-3 Some Rates and Ratios Depicting Uganda's Financial Infrastructure and Growth, 1950-1976 ..102

7-1 Empirical Determinants of Saving in Uganda: The Absolute Income Hypothesis, 1950-1972 166

7-2 More Empirical Determinants of Saving in Uganda, 1950-1972 170

7-3 Empirical Determinants of Saving in Uganda: The Permanent Income Hypothesis, 1950-1972 170

7-4 The Permanent Income Hypothesis: Saving in Uganda Compared to Saving in Some Other Developing Countries 175

7-5 Financial Intermediation and Saving in Uganda, 1950-1972 176

7-6 Empirical Determinants of Investment in Uganda, 1950-1972 178

7-7 Econometric Results of Model I, 1950-1972 188

7-8 The Reduced-Form of the Empirical Model I 199

7-9 Elasticity Multipliers Based on the Reduced-Form of Model I 201

7-10 Econometric Results of Model II, 1950-1972 205

7-11 The Reduced-Form of the Empirical Model II 210

7-12 Elasticity Multipliers based on the Reduced-Form of Model II 212

7-13 A Comparison of Single Equation with Simultaneous Equation Results 215

7-14 Testing for Structural Change During Fiscal Year 1972/73 by Means of the Chow Test 218

A1-1 Major Sources of the Data Used in This Study 244

A1-2 Some Data Used in This Study 245

A2-1 Empirical Determinants of Nominal Saving in Uganda: The Absolute Income Hypothesis, 1950-1972 248

A2-2 Empirical Determinants of Nominal Saving in Uganda: The Permanent Income Hypothesis, 1950-1972 250

A2-3 Empirical Determinants of Nominal Investment in Uganda, 1950-1972 251

A2-4 The Absolute Income Hypothesis: Saving in Uganda Compared to Saving in Some Other Developing Countries 254

LIST OF FIGURES

FIGURE PAGE

4-1 The Place of Financial Intermediaries in the Saving-Investment Process 81

6-1 Effect of the Real Return on Holding Money on Self-Financed Investment 140

6-2 Effect of the Real Return on Holding Money on Self-Financed and Externally Financed Investment 142

CHAPTER I

INTRODUCTION

A. Problems

Despite often divergent views as to how growth within, or the development of, an economy should proceed,[1] development economists and planners seem to concur that successful development requires the availability of capital in a sufficient measure. It is, therefore, often stated that developing countries are underdeveloped basically because of their lack of adequate capital. Consequently, development literature puts considerable stress on the domestic accumulation of capital, as well as on capital importation for development purposes.

---

[1] For illustration, we mention two divergent schools of thought on strategies of development: balanced and unbalanced growth. The theory of balanced growth, as propounded by Nurkse, examines methods of breaking out of the "vicious circle of poverty." The break must be achieved through a "more or less synchronized application of capital to a wide range of different industries. . . . The case for 'balanced growth' rests on the need for a 'balanced diet.'" Rosenstein-Rodan's theory of the "big push" is written in the same spirit. However, the theory of unbalanced growth, associated with Hirshman, argues that development should proceed through a series of deliberately created disequilibria. The scarce factors should be concentrated in "leading sectors," strategic industries with forward and backward linkages. Hirshman's theory and the Schumpeterian theory of the clustering of innovations are similar in several ways. See Ragnar Nurkse, *Problems of Capital Formation in Underdeveloped Countries*, 7th ed. (New York: Oxford University Press, 1960); Paul N. Rosenstein-Rodan, "Notes on the Theory of the Big Push," in H.S. Ellis and H.C. Wallich, eds., *Economic Development for Latin America* (New York: St. Martin's Press, 1961); Albert O. Hirshman, *The Strategy of Economic Development* (New Haven: Yale University Press, 1958); and Joseph A. Schumpeter, *Theory of Economic Development* (New York: Oxford University Press, 1961).

In connection with the process of domestic capital accumulation, many political, cultural, sociological, and economic factors exert a restraining influence. On the one hand, the supply of savings is low because real income is low. Real income is low because productivity in the economic process is low, and this, in turn, is largely the result of meagre capital resources. The latter, for its part, is the outcome of limited saving and investment activity--thus returning to our initial point. On the other hand, low productivity, coupled with the resultant low real purchasing power, offers but a weak stimulant to the demand for funds for financing development. Without a substantial enlargement of the narrow capital base, however, an increase in productivity cannot be conceived, so that even in this case the famous "vicious circle of poverty" is closed.[2]

In order to break out of the "vicious circle," a careful inventory of economic facts (such as saving and investment behaviour, sources and level of incomes, and the social infrastructure) is required. By means of this inventory, economic policy can then be orientated. A developing country must devote much effort to mobilizing capital from both domestic and external sources. However, in the final analysis, the country must step up saving within the domestic economy, as capital requirements (apart from the danger of too large an indebtedness to foreign countries) will always tend to be larger than the supply of funds from abroad. Moreover, the supply of foreign funds tends to be not only small but also extremely sensitive to the politico-economic atmosphere in the recipient country.

---

[2] For an extensive coverage of the "vicious circle of poverty," see Nurkse, *Problems of Capital Formation in Underdeveloped Countries*, and P.T. Bauer, *Dissent on Development*, Student Ed. (London: Weidenfeld and Nicolson, 1976).

Thus, we cannot overemphasize the role of domestic saving in economic development.[3] It is at this stage that financial intermediation assumes a vital role.[4] There is need to establish a strong financial system to play a dynamic role in inducing economic development. In such a system, as Hugh Patrick points out, financial institutions should "transfer resources from traditional . . . to modern sectors and promote and stimulate entrepreneurial response in these modern sectors."[5]

It is well known that *ex post* saving and investment in an economy are necessarily identical. However, this identity does not hold either *ex ante* for the whole economy or *ex post* for individuals, institutions, or sectors within the economy. As a result, unless all investment in the economy is self-financed, the acts of saving and investing

---

[3] Note, however, that the availability of capital is just *one* among many prerequisites for development. The importance of technology and such social factors as education and health should not be underestimated. However, consideration of factors other than the role of capital in development is beyond the scope of this study.

[4] We are thinking about private domestic saving at this stage, rather than government, or public, saving which will be discussed later.

[5] Hugh T. Patrick, "Financial Development and Economic Growth in Underdeveloped Countries," *Economic Development and Cultural Change* 14 (January 1966): 175-76.

will be accompanied by the creation of financial assets and liabilities. In the terminology of Gurley and Shaw, "deficit-spending" units (ultimate borrowers) will practise borrowing, while "surplus-spending" units (ultimate savers) will exercise saving.[6] In a modern economy, the communication set-up is such that savers and borrowers rarely come in direct contact with one another. In the absence of such contact, the satisfaction of both groups will be met by financial markets and intermediaries, which issue claims on themselves to the savers and acquire the debt of the borrowers.[7] Thus, the transmission of financial resources between lenders and borrowers finds expression in the balance sheet of a third party, the financial intermediary.

Further, in a growing economy, financial intermediaries play an important role not only in the transfer of funds from savers to borrowers but also in encouraging saving and dishoarding. Intermediaries perform the latter role by offering savers subsidiary facilities and attractions--such as the safety of funds from theft and physical damage, a rate of return (interest) on savings, insurance against hazards like fire, life assurance, and even the opportunity to borrow funds at some future date.

---

[6] See John G. Gurley and Edward S. Shaw, *Money in a Theory of Finance* (Washington, D.C.: Brookings Institution, 1960). Also see their "Financial Aspects of Economic Development," *American Economic Review* 49 (September 1955): 515-38; and "Financial Intermediaries and the Savings-Investment Process," *Journal of Finance* 11 (May 1956): 257-66.

[7] Financial intermediaries include savings banks, co-operative banks, development banks, insurance companies, hire-purchase and mortgage companies, credit unions, and building societies and companies. On the point as to whether commercial banks are unique as compared to non-bank financial intermediaries, there is no consensus amongst economists. This controversy will not, in any significant way, affect our subsequent analyses.

Initially, the establishment of financial intermediaries will, doubtlessly, increase total investment hitherto restricted by difficulties of "self-financing" and "direct-financing."[8] Intermediaries pool funds into practically inexhaustible "reservoirs" from which investments flow as need arises. As Higgins points out,

> if voluntary savings from upper-income groups are to contribute to financing developmental investment, . . . they must be mobilized by institutions capable of making them available to investors rather than consumers.[9]

In a developing country without such institutions, or with an inadequate number of them, other institutions--such as pownshops, landlords, and village moneylenders--usually spring up. These do not play an active role in the saving-investment process as they merely "divert the savings of one group to financing consumer expenditures of others."[10]

However, although financial intermediaries generally play a positively important role in economic development as elaborated above, they may play an additional role: that of siphoning funds out of the domestic economy. This can happen if intermediaries are branches of foreign companies as is the case in most developing countries. As branches of multinational corporations, they also have other adverse effects on the economies of the developing countries.[11] On this point, Sweezy observes that

---

[8] "Direct-financing" is the financing resulting from direct contact between lenders and borrowers, including lending and borrowing through brokers and agents. It is in contrast to "indirect-financing," where the borrowers procure finance through financial intermediaries. See Gurley and Shaw, "Financial Aspects of Economic Development."

[9] Benjamin Higgins, *Economic Development: Problems, Principles, and Policies*, Revised ed. (New York: W.W. Morton Co., 1968), p. 505.

[10] Ibid., p. 505.

> . . . a significant part of the local bourgeoisie is in effect denationalized and co-opted into the service of foreign interests while much of the surplus product of the economies is *drained away* in the form of repatriated profits, service of foreign debts, royalty payments for foreign technology, false invoicing of imports and exports and the building up of Swiss bank accounts by the local rich fearful for the future of their own countries.[12]

Hence, for policy and other purposes, the possibility of the occurrence of this negative role also underlines the call for a careful study of the *net* role financial intermediaries play in a given developing country.

B. Objectives of the Study

As explained above, financial intermediaries play a vital role in the mobilization of savings and the channelling of the savings into competing investment outlets. They may also play a negative role by, say, investing abroad funds accumulated domestically.

---

[11] A detailed discussion of multinationals is found in Charles P. Kindleberger, ed. *The International Corporation: A Symposium* (Cambridge: M.I.T. Press, 1970). Also see Paul M. Sweezy, "Multinational Corporations and Banks," *Monthly Review* 29 (January 1978): 1-9; and H. Radice, ed. *International Firms and Modern Imperialism* (London: Penguin Books, 1975).

[12] Sweezy, "Multinational Corporations and Banks," p. 6 (my emphasis).

Consequently, the main purpose of the underlying study is to examine critically the part played by financial intermediaries in the development process in Uganda, particularly through their impact on the domestic saving-investment process. Specifically, given the socio-political, institutional, and economic framework of Uganda, an attempt is made to supply qualitative and quantitative analyses of:

1. The development of the financial infrastructure in Uganda;
2. The determinants, levels, and forms of saving and investment in the country; and,
3. The role of financial intermediaries in
    (a) the mobilization of saving,
    (b) the financing of investment,
    (c) the "draining away" (or "leakage") of resources, and
    (d) the monetization of the economy.

C. Analyses and Hypotheses

The main hypothesis of this study is that financial intermediaries enhance development by encouraging saving and its allocation to investment.

Other hypotheses based on the following analyses will also be tested:

1. Uganda's Institutional Framework for Financing

Development;

2. Measurement and assessment of Financial Development in Uganda;
3. Determinants of Saving in Uganda;
4. Determinants of Investment in Uganda;
5. Financial Institutions and "Leakages" in Uganda; and
6. Financial Intermediaries and Monetization in Uganda.

D. The Scope of the Study

The study analyses the role of financial intermediaries in the saving-investment process in Uganda during the period 1950-1976.[13] In fact, the study lays more emphasis on the supply of loanable funds (saving) than on the demand for funds (investment). This is not to deny that the efficiency with which loanable funds are allocated among competing investment opportunities by, say, financial intermediaries is an important factor in determining the rate of growth of an economy. It is also recognised that occasionally the demand for loanable funds may be slack, or inadequate, in developing countries. Nevertheless, my belief is that in Uganda the major constraint to development is the lack of adequate investable funds, rather than the lack of investment outlets.

---

[13] However, due to a definite change in the structure of the economy, the econometric analyses of Chapter VII are based on a smaller sample, namely, covering the period 1950-1972. The structural change occurred, as will be demonstrated in Chapter VII, beginning with the fiscal year 1972/73.

Further, since the term "economic development," or "development," is frequently used in this study, there is a need for a definition of the term. Economic development is defined as

> . . . the process whereby the *per capita income* of a country increases over *a long period* of time--subject to the *stipulations* that the number below an "absolute poverty line" does not increase, and that the distribution of income does not become more unequal.[14]

In view of this definition, the use of the term in this study leaves much to be desired. Here, we deal with the saving-investment process insofar as it affects development. No attempt is made to analyse equity and other social aspects of development. Thus, determinants of economic development other than the rates of saving and investment are not considered. One need not overemphasize the point that a high level, or rate, of saving is a necessary, but not sufficient, condition for development. Hence, whenever the term development arises in this study, these qualifications must be borne in mind.

E. Format of the Thesis

The thesis consists of eight chapters. The purpose of the current chapter has been to define the problem, objectives, scope, and the organization of the thesis.

---

[14] Gerard M. Meier, *Leading Issues in Economic Development*, 3rd ed. (New York: Oxford University Press, 1976). (Emphasis in original.)

Chapter II and Chapter III present a brief background to the study. In Chapter II, the structure of the Ugandan economy is analysed. The chapter analytically describes the key sectors of the Ugandan economy: the agricultural sector, the industrial sector, the foreign sector, and the public sector. Chapter III presents a descriptive analysis of the financial institutions in the country. The institutions covered include the monetary authority, commercial banks, development-finance parastatal bodies, and various other non-bank financial intermediaries. Financial markets in Uganda are also discussed. Thus, Chapter II analyses the (real) structure (infrastructure) of the Ugandan economy and Chapter III focuses on the financial superstructure of the economy.

The analyses in Chapters II and III are facilitated by use of fifteen tables, eight in Chapter II and seven in Chapter III. Most of the tables cover the entire period under study (1950-1976). The author claims credit for the compilation of the tables, if not their originality, as all of them were compiled from basically "raw" data.

Chapters IV, V, and VI take up the main theme of the study.In these chapters, a review of the literature and evidence is undertaken. In addition, various theoretical models of financial intermediation and the saving-investment process are formulated and discussed. In Chapter IV, the saving-investment process, the institutional framework for mobilizing savings, and financial development in the country are discussed. Various measures of the financial superstructure are discussed, and a statistical analysis of some of the measures is undertaken. Further, saving and capital formation statistics are presented and discussed. In Chapter V, a review of the literature and evidence concerning single equation models is presented. A proxy for financial intermediation is introduced as one of the arguments in both the saving and the investment functions. Chapter VI presents a brief review of the literature and evidence concerning simultaneous equation models of saving and investment. In this chapter, the McKinnon complementarity hypothesis[15] and two "new" simultaneous equation models are discussed.

Chapter VII is devoted to the econometric estimation of the models discussed in Chapters V and VI. In addition, the nature of the data used in this study as well as the econometric problems encountered at the estimation stage are discussed. Thus, Chapter VII is the empirical counterpart of the theoretical Chapters V and VI.

Finally, in addition to providing a summary, Chapter VIII lays out the major conclusions, policy implications, and limitations of the study.

---

[15] See Ronald I. McKinnon, *Money and Capital in Economic Development* (Washington, D.C.: Brookings Institution, 1973).

CHAPTER II

THE STRUCTURE OF THE UGANDAN ECONOMY

The current chapter briefly describes and analyses some significant characteristics of the Ugandan economy in order to highlight those structural features that are relevant to the subject-matter of this study.

Like other developing countries, Uganda has a low standard of living, as is evident from its low per capita income.[16] As Table 2-1 shows, nominal per capita income increased from Shs 280.8 in 1950 to Shs 2,042.5 in 1976.[17] In real terms, per capita income increased by only 41.5 per cent--from Shs 438.6 in 1950 to Shs 620.7 in 1976. Real gross domestic product (GDP) grew at an average rate of 4.1 per cent, while real per capita income realised an annual

---

[16] Per capita income as a measure of economic welfare has been extensively criticized. Problems of a conceptual, statistical, and interpretational nature arise in using the measure to compare standards of living over time and across countries. For example, it does not take account of spatial and temporal differences in income distribution, in definitions of income, and in tastes and preferences. For further details, see, for example, Ian Livingstone and Henry W. Ord, *An Introduction to the Economics for East Africa* (London: Heinemann Educational Books, 1968), pp.13-17.

[17] The abbreviation "Shs" used throughout this study, refers to the Ugandan shilling, which is approximately equal to 13 U.S cents (i.e., Shs 7.50 = $U.S. 1.00). Also compare Uganda's 1972 per capita income of Shs 991 to the 1972 estimates of the per capita incomes of Kenya (Shs 1,200), U.K. (Shs 17,000), Canada (Shs 30,000), and U.S.A. (Shs 36,000). These estimates are based on the International Monetary Fund, *International Financial Statistics*, Washington, D.C.; May 1978.

TABLE 2-1

NATIONAL AND PER CAPITA INCOME (GDP) FOR UGANDA IN CURRENT AND CONSTANT (1966) PRICES, 1950-1976

Year	Estimated Population (millions)	National Income (GDP) (Shs million)		Per Capita Income (GDP) (Shs)	
		Current Prices	1966 Prices	Current Prices	1966 Prices
1950	5.1	1,432.0	2,237	280.8	438.6
1951	5.2	1,928.0	3,084	372.2	595.4
1952	5.5	2.154.0	3,423	393.8	625.8
1953	5.6	1.884.0	3,046	335.8	543.0
1954	5.8	2,208.0	3,789	384.0	660.5
1955	5.9	2,803.6	4,067	475.2	689.3
1956	6.1	2,831.6	4,272	468.0	706.1
1957	6.2	2,934.4	4,452	473.3	718.1
1958	6.7	2,936.0	4,483	438.2	669.1
1959	7.1	2,979.4	4,711	419.6	663.5
1960	7.6	3,042.5	4,863	403.0	644.1
1961	7.7	3,128.3	4,767	404.2	615.9
1962	7.9	3,133.3	4,803	394.6	604.9
1963	8.2	3,516.9	5,272	431.5	646.9
1964	8.4	3,902.1	5,516	466.8	659.8
1965	8.6	4,456.1	5,787	519.4	674.5
1966	8.8	6,119.0	6,119	694.6	694.6
1967	9.1	6,621.5	6,296	731.7	695.7
1968	9.3	6,626.0	6,459	712.5	694.5
1969	9.6	7,479.0	7,171	783.1	750.9
1970	9.8	8,528.0	7,279	869.3	742.0
1971	10.1	9,316.0	7,492	919.6	739.6
1972	10.5	10,367.0	7,542	991.1	721.0
1973	10.8	12,953.0	7,496	1,198.2	693.4
1974	11.2	16,025.0	7,509	1,434.7	672.2
1975	11.6	19,028.0	7,357	1,647.5	637.0
1976	11.9	24,387.0	7,411	2,042.5	620.7

SOURCES: 1. Population: IMF, *International Financial Statistics*, various issues.
2. GDP (Current Prices), 1972-1976: IMF, *International Financial Statistics*, various issues.
3. GDP (Current Prices), 1950-1971: Uganda Government, *Statistical Abstracts*, various issues.
4. GDP (1966 Prices), 1950-1966: ibid., various issues.
5. GDP (1966 Prices), 1966-1974: Uganda Government, *The Action Programme: A Three-Year Economic Rehabilitation Plan, 1977/78-1979/80* (Entebbe: Government Printer, 1977), pp. 24-25.
6. GDP (1966 Prices), 1975-1976: Bank of Uganda, *A Review of the Uganda Economy* (Kampala: Sapoba Bookshop Press, 1979), p. 4.

growth rate of 0.7 per cent during the period 1954-1976.[18]

The country's income is derived mainly from peasant agricultural production. The rapid growth of cash crop production for both domestic and export markets has been superimposed on what is still, basically, a subsistence economy, where a household's food crop production is its first priority.[19]

In general, Uganda is not overpopulated. In 1969, the country's actual population was 9.5 million, and the average density of population was only 48 persons per square kilometre. Nevertheless, some districts in the country (like Bugisu, Bukedi, and Kigezi) tend to be overcrowded (with population densities in 1969 of 161, 135, and 130 people per square kilometre, respectively).[20] Moreover, the 1969 Population Census revealed, among other things, that Uganda's population growth rate of 3.4 per cent per annum is very high. This rate of increase

---

[18] See Table 2-3 below.

[19] The subsistence sector is "a set of non-monetary economic activities undertaken by people most of whom also have monetary activities." See E.K. Fisk, "The Subsistence Component in National Income Accounts," in J.B. Hardarker, ed. *The Subsistence Sector in the South Pacific* (Suva, Fiji: University of the South Pacific, 1975), p. 37.

[20] See Uganda Government, *1973 Statistical Abstract* (Entebbe: Government Printer, 1973), Table B. 2, p. 10. The age distribution of the population is as follows (as per Table B. 3, p. 11 of the booklet):

0-14 years (children)	46.2 per cent
15-64 years (working population)	49.8 per cent
65 years (and over) (senior citizens)	4.0 per cent

Thus, the young and old comprise 50.2 per cent of the population.

> . . . is among the very highest in the world today. This fact has such ominous implications for incomes, employment and expenditures on social services that it is truly cause for alarm. The Government, therefore, intends to initiate immediately a programme aimed at bringing about, in the long run, a definite decline in the rate at which our population grows every year.[21]

However, as the following analysis will reveal, the most relevant and pervasive characteristic of the Ugandan economy is its heavy dependence on agriculture and foreign trade. Industrialization is still in its infant stage of development, and, structurally, is limited by the small size of the domestic market. Consequently, the economic growth of Uganda is heavily dependent on, *inter alia*, the vagaries of weather, fluctuations in the quantities and prices of its major exports, variations in the terms of trade, and the level of productivity in the agricultural sector. Needless to say, the contribution of financial intermediaries to the development of the country will also be affected by these factors. The sections below attempt to shed more light on these phenomena.

---

[21] Uganda Government, *Uganda's Plan III: Third Five-Year Development Plan, 1971/2 - 1975/6* (Entebbe: Government Printer, 1971), par. 1.45, p. 12. Also see Uganda Government, *Work for Progress: Uganda's Second Five-Year Plan, 1966-1971* (Entebbe: Government Printer, 1966), par. 1.21, p. 6. Hereafter these documents will be quoted simply as *Plan III* and *Plan II*, respectively.

A. Agriculture

Although its relative importance has been declining over time, as Table 2-2 shows, the agricultural sector still accounts for over 50 per cent of Uganda's GDP. The sector also provides employment for over 80 per cent of the population; and about 90 per cent of the country's exports are agricultural products.[22] Agriculture is, therefore, the cornerstone on which Uganda's development must be built.

During the 1954-1976 period, the sector grew at an average annual rate of 5.5 per cent, while the monetary sector realized an average annual growth rate of 4.5 per cent as Table 2-3 shows. But as illustrated by the same table, the rates fluctuated considerably from year to year. For instance, the growth rate for the agricultural sector ranged from a low of -3.3 per cent in 1968 to a high of 30.9 per cent in 1969. The variations were largely caused by fluctuations in the prices of the sector's products.

Uganda's economy is still dual, with both monetary and non-monetary (subsistence and barter) sectors. The non-monetary sector contributes about 30 per cent to the country's GDP, just over 50 per cent of agricultural production.[23] The subsistence sector provides most of the staple foods for the steadily increasing population, although there seems to have been little change in the methods of production and productivity in the sector. Coffee,

---

[22] See Table 2-6 below.

[23] See Bank of Uganda, *A Review of the Uganda Economy*, p. 4.

TABLE 2-2

PERCENTAGE DISTRIBUTION OF GDP AT FACTOR COST AND IN CURRENT PRICES, 1954-1976

Year	Agri-culture	Industry	Com-merce	Transport & Commu-nications	Rents	Government and Other Services	TOTAL
1954	68.9	11.4	9.1	2.9	1.1	6.6	100.0
1955	66.6	12.3	9.2	3.1	1.2	7.6	100.0
1956	63.9	13.6	9.5	3.0	1.5	8.5	100.0
1957	64.0	11.7	10.0	3.2	1.7	9.1	100.0
1958	63.8	12.0	9.4	3.6	1.8	9.4	100.0
1959	63.1	11.9	9.4	4.9	2.1	9.7	100.0
1960	61.2	13.8	10.0	3.8	2.3	11.3	100.0
1961	61.5	11.8	9.3	3.7	1.8	11.6	100.0
1962	60.8	12.0	9.2	3.5	2.6	12.0	100.0
1963	60.9	12.1	10.4	3.2	2.1	10.9	100.0
1964	60.1	13.0	10.0	2.9	2.0	11.7	100.0
1965	59.4	13.9	9.4	2.5	1.9	12.2	100.0
1966	57.7	13.9	8.1	2.6	1.6	9.9	100.0
1967	58.5	13.2	7.4	3.4	1.5	9.8	100.0
1968	56.4	14.1	7.9	3.1	1.7	11.0	100.0
1969	54.3	14.3	13.2	3.3	6.9	11.4	100.0
1970	57.2	13.2	12.3	3.1	6.4	10.8	100.0
1971	57.2	12.1	12.8	3.3	6.7	10.8	100.0
1972	49.4	14.3	10.6	4.3	6.5	10.8	100.0
1973	53.6	15.3	9.1	4.3	2.9	14.8	100.0
1974	53.0	15.2	9.3	4.6	3.2	14.7	100.0
1975	53.9	14.1	8.6	4.4	3.7	15.3	100.0
1976	53.9	13.5	8.7	4.3	4.0	15.6	100.0
1955-60	64.5	12.4	9.5	3.5	1.7	8.9	100.0
1960-70	58.9	13.2	9.7	3.2	2.8	11.1	100.0
1970-76	54.0	14.0	10.2	4.0	4.8	13.3	100.0
1954-76	59.5	13.2	9.7	3.5	2.9	11.1	100.0

SOURCES: 1. 1954-1971: Uganda Government, *Statistical Abstracts*, various issues.
2. 1972-1976: Bank of Uganda, *A Review of the Uganda Economy*.

TABLE 2-3

GROWTH RATES OF SOME SECTORS AND VARIABLES IN THE UGANDAN ECONOMY, 1954-1976

(Percentages)

Year	Real GDP	Monetary Sector (Nominal)	Agri-culture (Nominal)	Industry (Nominal)	Capital Formation (Nominal)	Real Per Capita Income	Consumer Price Index (1966=100)
1954	24.7	3.4	1.1	7.3	-8.3	21.7	71.8
1955	7.1	10.0	5.2	18.5	17.6	4.4	75.9
1956	5.0	9.8	-3.0	10.9	8.1	2.4	79.7
1957	4.2	6.4	3.6	-7.9	-19.2	1.7	81.4
1958	0.7	-3.1	-0.4	-0.8	1.6	-6.8	83.2
1959	5.1	1.9	0.5	0.6	-8.7	-0.8	83.8
1960	3.2	2.3	-0.9	1.7	3.9	-2.9	79.0
1961	-2.0	0.3	7.7	2.8	-3.2	-4.3	91.4
1962	0.8	-2.9	1.8	1.6	-1.7	-1.7	79.0
1963	9.8	19.1	12.5	13.3	13.0	6.9	81.4
1964	4.6	9.5	9.3	18.8	21.0	2.0	89.7
1965	4.9	6.6	13.2	22.9	70.2	2.2	100.7
1966	5.7	12.3	1.7	4.3	3.4	3.0	100.0
1967	2.9	4.5	7.9	0.9	18.9	0.2	103.1
1968	2.6	3.0	-3.3	7.3	6.6	-0.2	100.0
1969	11.0	13.7	30.9	8.8	10.0	8.1	111.7
1970	1.5	11.3	21.2	7.3	-2.3	-1.1	122.7
1971	2.9	5.6	9.5	1.3	27.8	-0.3	142.9
1972	0.7	-1.0	3.7	-2.4	-11.4	-2.5	137.5
1973	-0.6	-2.5	7.3	-5.9	-23.9	-3.8	171.1
1974	0.2	-1.7	-3.1	0.0	56.9	-3.1	285.6
1975	-2.0	-4.3	-0.3	-8.7	-1.9	-5.2	343.6
1976	0.7	-0.6	0.7	-4.6	-21.5	-2.6	529.2
1954-60	7.1	3.1	0.9	4.3	-0.7	2.8	79.3
1960-70	4.1	7.2	9.3	8.2	12.7	1.1	96.2
1970-76	0.5	1.0	5.6	-1.9	3.4	-2.7	247.4
1954-76	4.1	4.5	5.5	4.3	6.8	0.7	136.7

SOURCE: Same as for Table 2-1.

cotton, and tea are the dominant cash crops, accounting for over 80 per cent of Uganda's foreign exchange earnings.[24] Except for tea, the crops are essentially produced on small holdings owned by peasant farmers.

It has been argued that in a developing country, the agricultural sector must play a number of interrelated roles.[25] The sector must:

1. Provide food for the rapidly growing agricultural population;
2. Provide a food surplus for the equally rapidly growing non-agricultural population;
3. Provide employment for the expanding labour force;
4. Increase rural earnings so as to provide a market for the expanding manufacturing sector;
5. Earn foreign exchange badly needed for the importation of capital, intermediate goods, and spare parts necessary for development;
6. Provide a local supply of raw materials for the industrial sector; and,
7. Generate savings for investment in the non-agricultural sector.

Government policy towards agriculture must aim to achieve these objectives. In Uganda, the government has always recognised that agriculture is the backbone of the country. Hence, as an examination of the country's development plans will reveal, government policy has been directed towards improving the sector. For example, *Plan III* states:

---

[24] See Table 2-6 below.

[25] See, for example, Peter F.M. McLoughlin, *Agriculture in East and Central Africa: An Overview* (London: Longmans Books, 1970), chapter 4; Hal Mettrick, *Aid in Uganda--Agriculture* (London: Overseas Development Institute, 1967), p. 9; and Uganda Government, *Plan III*, par. 1.5, pp. 13-14.

> Agricultural production must continue to expand for there to be any appreciable growth in total Gross Domestic Product. Moreover, . . . a Development Plan which did not provide for the growth of agricultural production and incomes would hardly have any impact on the welfare of the majority of the population.[26]

Specifically, Uganda aims to attain self-sufficiency in "the supply of local agricultural food products,"[27] and to promote exports by improving the quality of crops like coffee and cotton, and increasing the quantities of cotton, tea, and tobacco. Besides, for obvious reasons, "diversification of agricultural production for export, or for import substitution, has always been a national policy."[28]In this regard, the government has been developing a number of cash crops to supplement traditional crops or to replace imports. The "new" crops include cocoa, groundnuts, rice, and wheat.

Uganda's policy towards agriculture also aims at widening the scope of the monetary sector while, simultaneously, narrowing the magnititude of the non-monetary sector; the latter being generally less technically efficient in

---

[26] Uganda Government, *Plan III*, par. 1.51, p. 14.
[27] Uganda Government, *The Action Programme: A Three-Year Economic Rehabilitation Plan, 1977/78-1979/80* (Entebbe: Government Printer, 1977), par. 1.22, p. 7. Hereafter, this document will be quoted as the *Action Programme*.
[28] Ibid., par. 1.25, p. 7.

comparison with the former.[29] Efforts are directed towards speeding up economic activity in the subsistence sector by monetising it; for

> once started, the process of economic development both feeds upon, and brings about modernization in the subsistence sector and a transfer of resources to the modern sector by which productivity is increased in both sectors. This process depends upon the expansion of the use of money as a counterpart of specialization, and the growing surplus over the subsistence level provides the real counterpart for the finance made available for capital formation.[30]

Moreover, it is believed that financial intermediation and monetization of an economy reinforce each other,[31] which further stresses the importance of diminishing the size of the subsistence sector.

B. Industry

Uganda's industrial sector is relatively small.[32] As evident from Table 2-4, manufacturing is the dominant industrial activity; its contribution to real GDP ranged between 9 per cent and 12 per cent during the 1966-1974 period.[33] As table 2-2 shows, industrial production accounted for between 11.4 per cent and 15.3 per cent of GDP in the period 1954 to 1976 (averaging 13.2 per cent).[34] The sector's output grew at an annual rate of 4.3. per cent during the period.[35]

---

[29] For the substantiation of this claim, as well as a detailed analysis of the monetization of the subsistence sector, see Anand G. Chandavarkar, "Monetization of Developing Economies," *IMF Staff Papers* 24 (November 1977): 665-721.

[30] Walter T. Newlyn, *Finance for Development: A Study of Sources of Finance in Uganda, with Particular Reference to Credit Creation* (Nairobi: East Africa Publishing House, 1968), p. 18.

[31] Chandavarkar argues that monetization precedes financial intermediation rather than that the two reinforce each other. However, Patrick maintains that they actually reinforce each other. See A. G. Chandavarkar, "Monetization of Developing countries," pp. 667-70; and Patrick, "Financial Development and Economic Growth in Underdeveloped Countries," pp. 175-78.

[32] The industrial sector includes processing, mining and quarrying, and manufacturing. See Table 2-4.

Annual industrial surveys, implemented in the 1960s, showed that establishments with ten or more employees were engaging over 45,000 people in industrial production. Total turnover (gross output) at market prices by the sector amounted to Shs 2,256.7 million in 1969, while the sector's value-added totalled Shs 565.7 million in the same year.[36]

The manufacturing sector consists of light industries, mostly oriented towards import-substitution in view of the country's heavy dependence on imports of manufactured goods. However, industrial products like textile fabrics, Uganda Waragi (an alcoholic beverage), and cement have passed the import-substitution stage and are now exported to Kenya and other neighbouring countries. The subsector consists of seven major industries: food, beverage, and tobacco; textiles; leather and footwear; wood and paper; chemicals; non-metallic products; and steel and metal products. As

---

[33] Uganda Government, *Action Programme*, par. 1.32, p. 9.
[34] The "industrial production" is defined to include cotton ginning, coffee and tobacco curing, tea processing, electricity generation, and construction.
[35] See Table 2-3
[36] See Uganda Government, *1973 Statistical Abstract*, Table K.2, p. 63.

TABLE 2-4

THE RELATIVE IMPORTANCE OF THE SUBSECTORS OF INDUSTRY IN UGANDA, 1954-1976

(Percentages)

Year	Processing	Mining and Quarrying	Manufacture of Food Products	Other Manufacturing	Electricity	Construction	Total
1954	26.1	5.9	10.3	25.9	5.0	26.8	100.0
1955	24.5	6.2	7.9	31.1	5.3	25.0	100.0
1956	24.1	5.9	7.1	29.6	5.5	27.8	100.0
1957	27.7	8.2	8.4	26.2	7.4	22.1	100.0
1958	24.3	9.0	8.5	25.5	8.8	23.8	100.0
1959	23.8	11.5	7.2	25.8	10.0	21.7	100.0
1960	21.6	12.4	6.7	26.7	10.8	21.7	100.0
1961	22.0	12.2	6.8	26.3	11.7	20.8	100.0
1962	19.0	13.9	6.8	26.3	13.1	20.8	100.0
1963	26.5	13.0	5.9	25.5	12.7	16.3	100.0
1964	22.7	20.9	6.8	24.4	11.5	13.7	100.0
1965	18.0	23.2	6.1	27.5	10.5	14.7	100.0
1966	9.9	10.7	5.1	36.9	7.0	30.5	100.0
1967	9.5	8.3	6.0	36.2	7.5	32.4	100.0
1968	9.1	9.4	5.2	38.7	7.3	30.3	100.0
1969	8.7	11.1	4.0	39.7	6.4	30.2	100.0
1970	10.4	10.2	4.1	40.5	6.4	28.5	100.0
1971	7.8	9.0	4.0	42.7	6.8	29.6	100.0
1972	7.9	8.3	5.2	39.8	8.2	30.7	100.0
1973	8.0	6.3	5.0	39.5	8.7	32.5	100.0
1974	6.5	6.1	4.3	40.7	8.5	34.1	100.0
1975	5.7	5.7	3.9	38.9	9.1	36.6	100.0
1976	5.3	4.0	3.6	39.8	9.1	38.4	100.0
1954-60	24.6	8.4	8.0	27.3	7.5	24.1	100.0
1960-70	16.1	13.2	5.8	31.7	9.5	23.6	100.0
1970-76	7.4	7.1	4.3	40.3	8.1	32.9	100.0
1954-76	16.0	10.1	6.1	32.8	8.5	26.4	100.0

SOURCE: Same as for Table 2-1.

Table 2-4 shows, processing (that is, coffee curing cotton ginning, sugar manufacturing, tobacco curing, and tea processing) is an important industrial activity. In the 1954-1976 period, it averaged 16.0 per cent of total industrial production.

Government policy towards industry emphasizes industrialization on the basis of import substitution and processing of locally produced primary products. In *Plan III*, it is specifically stated that future industrial strategy will emphasize three aspects:

> (i) a careful exploration and exploitation of inter-industry linkages;
> (ii) greater participation by indigenous interests in industrial ownership and management, this being a basic objective of development;
> (iii) a more purposeful promotion of the use of labour-intensive production techniques.[37]

The plan also outlines specific measures for the expansion of markets.

In fact, the Government has extended its policy of industrialization to include: (1) direct participation through a statutory corporation, the Uganda Development Corporation (UDC), instituted in 1952; and, (2) encouragement of foreign participation through fiscal incentives. The incetives are embodied in the "Income Tax (Management) Act" of 1958, while the "Foreign Investment (Protection) Act" of 1964 "provides for the protection of foreign investment."[38] The latter statute, among other things, rules out government sequestration of any business owned by foreigners; and guarantees that, where nationalization is inevitable, the owners of the nationalized industries will be fully compensated. Government participation through the UDC and other parastatal bodies will be discussed later.[39]

---

[37] Uganda Government, *Plan III*, par. 1.56, p. 56.
[38] Uganda Government, *Laws of Uganda*, Act 17 of 1964. The statute is reproduced in the *Action Programme*, pp. 58-61.

C. The Foreign Sector

Like other developing economies, the Ugandan economy is highly dependent on other economies. The high degree of openness implies that the country is very vulnerable to disturbances and distortions originating from other economies. Given that the country depends on exports and imports whose prices are determined by conditions outside the country's control, one of the major effects of such openness is to reduce the Uganda government's power to use fiscal and financial policies in controlling domestic economic activity.

A high concentration of capital and the availability of the proper type of technology are two of the preconditions for development. Apart from sustaining a large part of the population, which derives its livelihood from growing such cash crops as coffee and cotton, the foreign sector provides badly needed foreign exchange. This foreign exchange enables the country to import capital and technology necessary for development. Thus, one cannot overemphasize the importance of the foreign sector.

---

[39] Parastatal bodies are government-owned (statutory) corporations. Although they have separate administrative organizations, they rely on the government for the raising of funds and for policy guidelines.

As Table 2-5 shows, export earnings in Uganda have generally had an upward trend. Earnings grew from Shs 921.9 million in 1955 to Shs 2,919.0 million in 1976. Nevertheless, the earnings exhibited fluctuations during the period. Further, the ratio of export to GDP-the average prompensity to export (APX)--generally declined, from a high of 39.0 per cent in 1964 to a low of 10.0 per cent in 1975.

Imports have also been on the increase, although they have experienced severe fluctuations, especially after 1970. The value of imports ranged from a low of Shs 640.9 million in 1959 to Shs 1783.0 million in 1971. Like the APX, the average propensity to import (APM), has generally declined during the period, falling from a high of 27.8 per cent in 1955 to a low of 5.9 per cent in 1976.

The value of export taxes and import duties has also increased over time. However, as Table 2-5 shows, tax revenues from foreign trade have shown considerable annual fluctuations. Further, the ratio of tax revenue on foreign trade to GDP, like the APX and APM, has shown a downward trend during the period.[40] And, as the last column of Table 2-5 shows, on the average taxation on foreign trade

---

[40] The APXs and APMs for Kenya and Tanzania are as high as those for Uganda, while those for Canada are 22.4 per cent and 20.5 per cent, respectively, and those for the U.S.A. are 4.7 per cent and 5.2 per cent, respectively (1972 estimates).

TABLE 2-5

SOME CHARACTERISTICS OF THE FOREIGN SECTOR OF THE UGANDAN ECONOMY, 1955-1976

	TOTAL EXPORTS		TOTAL IMPORTS		EXPORT & IMPORT TAX REVENUES		
Year	Value (Shs m)	% of GDP	Value (Shs m)	% of GDP	Value (Shs m)	% of GDP	% of Government Revenue
1955	921.9	32.9	778.9	27.8	192.1	6.9	43.4
1956	919.3	32.5	664.9	23.5	243.4	8.6	52.8
1957	1,043.1	35.5	708.5	24.1	191.9	8.5	43.6
1958	1,052.3	36.0	686.5	23.5	226.3	7.7	50.7
1959	969.1	32.5	640.9	21.5	192.8	6.5	46.8
1960	992.4	32.6	652.9	21.5	175.8	5.8	43.0
1961	962.2	30.8	679.7	21.7	163.5	5.2	35.5
1962	955.5	30.5	677.3	21.6	246.5	7.9	43.6
1963	1,254.8	35.7	817.1	23.2	336.4	9.6	50.5
1964	1,521.8	39.0	928.2	23.8	412.8	10.6	51.1
1965	1,473.6	33.1	1,151.1	25.8	355.2	8.0	45.0
1966	1,551.1	25.9	1,188.2	19.9	421.7	7.1	43.7
1967	1,562.8	23.6	1,137.5	17.2	431.8	6.5	44.4
1968	1,540.5	24.3	1,176.0	18.5	421.5	6.6	38.8
1969	1,661.0	22.2	1,246.7	16.7	448.3	6.0	38.5
1970	2,021.9	23.6	1,238.9	14.5	546.4	6.4	39.3
1971	1,857.2	19.9	1,783.0	19.1	548.6	5.9	34.5
1972	2,018.6	19.5	1,158.2	11.2	478.8	4.6	34.9
1973	2,043.3	15.8	1,139.0	8.8	500.3	3.9	35.7
1974	2,248.8	14.0	1,645.8	10.3	672.0	4.2	44.8
1975	1,901.9	10.0	1,526.6	8.8	840.0	4.4	49.4
1976	2,919.0	12.0	1,408.1	5.9	960.0	3.9	43.6
AVERAGES							
1955-60	983.0	33.7	688.8	23.7	203.7	7.3	46.7
1960-70	1,408.1	29.2	990.3	20.4	360.0	7.2	43.1
1970-76	2,144.4	16.4	1,414.2	11.2	649.4	4.8	40.3
1955-76	1,517.4	26.5	1,047.0	18.6	409.4	6.6	43.4

SOURCE: Same as for Table 2-1.

accounted for 43.4 per cent of total government revenue during the 1955-1976 period.

The decline in the APX and APM ratios were caused by both political and economic factors, such as import controls, quantity and price fluctuations, and transportation problems. A discussion of all of these factors is beyond the scope of this study.

Turning to exports, Table 2-6 shows that, like other developing countries, Uganda depends on a few exports. During the 1958-1975 period, coffee and cotton alone accounted for 77.8 per cent of Uganda's annual export earnings--coffee accounting for 53.6 per cent and cotton for 24.2 per cent, on the average (Table 2-6). In addition, Uganda's exports are mainly primary products, and, because the country is not a major producer of the exports, it is necessarily a price-taker. Because the bulk of exports are agricultural products whose production is still based on traditional technology, export supply is largely determined by the vagaries of weather. Furthermore, as Oloya points out, exports tend to face inelastic demand in their traditional markets, the developed countries, such as the U.K. and the U.S.[41] For all these reasons, wide fluctuations in export prices and quantities, and revenues from year to year are not uncommon (Table 2-8).

As for imports, the picture is similarly gloomy.

---

[41] See J.J. Oloya, *Some Aspects of Economic Development, with Special Reference to East Africa* (Kampala, Nairobi, Dar es Salaam: East African Literature Bureau, 1968).

TABLE 2-6

THE RELATIVE CONTRIBUTION OF THE MAJOR EXPORT COMMODITIES TO THE TOTAL VALUE OF UGANDA'S DOMESTIC EXPORTS, 1955-1975

(Percentages)

Year	Coffee	Cotton	Copper	Tea	Animal Feeds	Hides, Skins and Others	TOTAL
1958	45.8	39.9	4.5	2.2	2.4	5.1	100.0
1959	44.4	36.7	6.6	2.8	3.9	5.6	100.0
1960	40.9	35.9	8.9	3.5	4.0	6.8	100.0
1961	35.7	42.6	7.6	3.8	3.6	6.7	100.0
1962	53.6	21.9	9.6	5.3	2.3	7.3	100.0
1963	52.8	27.8	7.0	4.0	3.1	5.3	100.0
1964	54.9	24.6	9.6	3.4	2.6	4.9	100.0
1965	48.5	26.7	12.7	3.8	3.1	5.2	100.0
1966	52.8	23.3	8.7	4.8	3.4	7.0	100.0
1967	53.5	23.5	8.5	5.4	3.5	5.6	100.0
1968	54.6	22.6	8.5	5.7	2.9	5.7	100.0
1969	53.9	17.2	12.3	6.4	2.9	7.5	100.0
1970	50.4	17.4	8.2	4.7	2.5	16.8	100.0
1971	52.9	18.9	7.4	5.2	2.0	13.5	100.0
1972	61.0	19.8	6.1	6.8	1.7	4.6	100.0
1973	61.1	15.2	5.0	5.0	2.2	11.5	100.0
1974	70.8	11.7	5.2	4.7	1.1	6.5	100.0
1975	77.0	10.8	3.6	6.2	0.6	1.8	100.0
AVERAGES							
1960-70	50.1	25.8	9.2	4.6	3.1	7.2	100.0
1970-75	62.2	15.6	5.9	5.4	1.7	9.1	100.0
1958-75	53.6	24.2	7.8	4.6	2.7	7.1	100.0

SOURCE: Same as for Table 2-1.

Uganda's imports consist mainly of finished manufactured goods as opposed to primary and intermediate goods. For example, during the period 1957-1975, intermediate goods accounted for only 22.8 per cent of total import expenses. Over the same period, purchases of producers' capital goods averaged 26.4 per cent; consumer goods 30.8 per cent; spares and accessories 4.9 per cent; and food, drink, and tobacco 7.4 per cent of total import expenses, as Table 2-7 shows. . As in the case of exports, Uganda is not a major participant in world import markets, and is, therefore, a price-taker in these markets. Moreover, as Ndegwa, points out and as Table 2-8 shows, over the years, prices of exports (primary commodities) have tended to fall, while those of imports (manufactured goods) have tended to rise.[42] The net results has been that Uganda's terms of trade,[43] like those of many non-oil producing countries, have tended to deteriorate over time.

The high degree of openness of the Ugandan economy leads to various "leakages" in the multiplier process through commodity imports as well as repatriation of income from the domestic economy. Moreover, like other developing countries, Uganda depends heavily on foreign "aid" without which many development projects would not be implemented.

Dependence on foreign "aid" has its own shortcomings.

---

[42] See Phillip Ndegwa, *The Common Market and Development in East Africa* (Nairobi: East African Publishing House, 1965), chapter I.

[43] If TT = terms of trade, PX = the export price index, and PM = the import price index, then TT = PX/PM.

TABLE 2-7

PERCENTAGE DISTRIBUTION OF UGANDA'S RETAINED IMPORTS BY END-USE, 1957-1975

Year	Food, Drink and Tobacco	Producers' Materials[1]	Producers' Capital Goods[2]	Spares and Accessories	Consumer Goods	Others	Total
1957	3.9	12.5	26.9	5.8	42.4	8.5	100.0
1958	5.0	14.1	27.8	5.2	38.6	9.3	100.0
1959	5.3	14.5	27.6	4.8	38.4	9.4	100.0
1960	4.3	15.7	28.9	4.6	37.7	9.1	100.0
1961	4.8	14.8	25.9	4.4	40.1	10.0	100.0
1962	6.1	16.3	27.6	5.1	35.1	9.8	100.0
1963	4.5	12.8	31.7	4.6	36.0	10.4	100.0
1964	4.5	11.4	35.9	5.7	32.8	9.6	100.0
1965	5.3	11.0	36.0	5.1	33.0	9.1	100.0
1966	11.4	29.0	20.4	4.4	30.9	3.9	100.0
1967	11.1	30.0	26.0	4.1	25.4	3.4	100.0
1968	8.9	33.9	23.5	4.1	27.2	2.5	100.0
1969	10.5	36.5	23.1	4.3	24.1	1.6	100.0
1970	5.1	39.0	22.1	4.5	27.7	1.6	100.0
1971	4.6	34.5	27.8	4.2	28.4	0.4	100.0
1972	12.5	25.7	27.8	6.8	19.9	8.6	100.0
1973	13.3	28.6	18.7	5.2	25.4	8.5	100.0
1974	12.5	28.1	19.5	5.3	22.2	12.4	100.0
1975	7.3	24.3	24.3	5.0	20.0	19.3	100.0
1960-70	7.0	22.8	27.4	4.6	31.8	6.5	100.0
1970-75	9.2	30.0	23.4	5.2	23.9	8.5	100.0
1957-75	7.4	22.8	26.4	4.9	30.8	7.8	100.0

SOURCE: Same as for Table 2-1.

[1] These are intermediate goods and raw materials.

[2] These are mainly "machinery and transport equipment."

TABLE 2-8

SOME CHARACTERISTICS OF UGANDA'S FOREIGN TRADE: TRADE INDICES, 1957-1976

(1964 = 100.0)

Year	EXPORTS			IMPORTS			Terms of Trade
	Price	Quantity	Value	Price	Quantity	Value	
1957	90	98	88	109	66	72	83
1958	89	93	82	101	70	71	88
1959	90	87	78	90	73	66	100
1960	94	85	82	82	79	63	115
1961	93	88	78	83	73	61	112
1962	88	90	79	82	72	59	107
1963	103	92	94	87	93	80	118
1964	100	100	100	100	100	100	100
1965	90	108	97	105	118	125	86
1966	89	116	102	106	122	130	84
1967	90	112	103	112	112	125	80
1968	95	105	100	100	133	134	95
1969	95	119	113	104	134	139	91
1970	104	130	135	110	120	132	95
1971	109	119	130	120	174	208	91
1972	105	137	144	139	89	124	76
1973	127	117	149	160	77	123	79
1974	163	97	157	224	75	168	73
1975	154	86	133	292	54	158	53
1976	263	76	199	323	42	127	81
1960-70	95	104	98	97	105	104	98
1970-76	146	109	150	195	90	147	79
1957-76	112	103	112	131	94	113	90

SOURCE: Same as for Table 2-1.

The "aid" has various strings, the most important being the increased loss of autonomy by the recipient. Domestic economic (and other) policies have to be formulated so as not to "harm" the "aid" donor(s). In case of "harmful" policies, there will usually be capital flight from the developing country. Such massive outflows of capital can paralyze the developing economy. This scenario of "harmful" policies followed by capital flights was the case in Uganda in both 1969-70 and 1972. During the period 1969-1970, the government issued various documents aimed at turning Uganda into a socialist state. It also nationalized many financial institutions and private companies.[44] And, in 1972, the military government declared an "Economic War" in defiance of the wishes of "aid" donors.[45] The "war" included the take-over of certain businesses formerly owned by British nationals and non-Ugandan Asians, who were expelled from the country *en masse.*

In any case, it is preferable that the capital market be dependent on domestic funds. Even if one could ignore capital flights resulting from "harmful" policies, other

---

[44] For more on the "socialist" documents issued by the Obote regime, refer to Mahmood Mamdani, *Politics and Class Formation in Uganda* (New York: Monthly Review Press, 1976), especially chapters 7 and 8.

[45] The "Economic War," as stated in the preface to the *Action Programme*, was a series of "revolutionary decisions . . . which placed the economy squarely on shoulders of Ugandans, and consolidated our economic independence and political sovereignty." It started with the expulsion of the Israelis, non-citizen Asians, and Britons from the country and ended by the reorganization of the economy (which included the reallocation of businesses previously owned by the departed non-citizens).

kinds of capital flights may occur. For instance, in reference to the capital market, Dorrance notes:

> If it is dependent on foreign investors, it will be subject to severe crises whenever the inflow of foreign funds diminishes. . . . Any slight "recession" will frighten the foreign investors and convert such "recessions" into "crises."[46]

Economic dependence and the resultant fluctuations will have pervasive effects on the saving-investment process. Depending on their nature, financial intermediaries may enhance "leakages," or capital flights. These issues will be examined further in subsequent chapters.

Now, we turn to policies government pursues so as to lessen the loss of autonomy resulting from the openness of the economy. Import substitution, export promotion and diversification, as well as self-reliance insofar as food crops are concerned all are policies aimed at attaining some degree of economic independence.[47] Moreover, as will be explained in Chapter III, government has enacted laws and promulgated decrees to regulate the operation of multinational companies in Uganda.

Uganda has also joined various organizations that aim to stabilize, and to increase, export earnings of their member states. For example, it is a member of both the International Coffee Agreement and the Inter-African Coffee Organization. The two bodies regulate the supply of coffee so as to ensure high coffee prices and to mitigate price fluctuations. They also help member states to diversify their exports through a special fund set up for that purpose.

---

[46] Graeme S. Dorrance, "The Instruments of Monetary Policy in Countries Without Highly Developed Capital Markets," *IMF Staff Papers* 12 (July 1965): 272.

[47] While W.A. Lewis advocates import-substitution as one of the effective measures for lessening economic dependence, Benjamin Cohen, among others, insists that the measure, if pursued, ". . . may actually increase rather than decrease dependence in the poor countries" through, for example, increased importations of required raw materials and intermediate inputs. See W. Arthur Lewis, *Development Planning* (London: Allen and Unwin, 1966); and Benjamin Cohen, *The Question of Imperialism* New York: Monthly Review Press, 1973).

D. The Public Sector

The public sector in Uganda comprises the Central Government, local governments--that is, provincial, district, municipal, and town authorities--statutory corporations (parastatal bodies), and commodity marketing boards. Until July 1977, it also included the East African Community (EAC), which is now a defunct body.

The Central Government is the most powerful authority by virtue of its share of public and taxation power. It alone has the power to obtain loans from outside Uganda, and it alone imposes such taxes as the income tax. As the *Action Programme* states,

> government participation in the economy is dictated by the fact that in a developing country like Uganda, private enterprise alone would not initiate development in all fields without the leadership or participation of the Government. It is also recognized that certain services by their nature can only be given by the State.[48]

---

[48] Uganda Government, *The Action Programme, par. 2.18, p. 45.*

The government, therefore, provides a number of services in various fields. These include the generation and distribution of electricity, provision of water supplies, marketing of major exports, provision of the road infrastructure, and exploration and exploitation of major mineral resources.

Local governments concern themselves with the administration of law and order and the provision of such basic services as primary education, health, and the maintenance of secondary roads.

Marketing boards include the Coffee Marketing Board (CMB), the Lint Marketing Board (LMB), and the Produce Marketing Board (PMB); while the parastatal bodies include the Uganda Development Corporation (UDC), the Uganda Electricity Board (UEB), the Uganda Commercial Bank (UCB), the National Insurance Corporation (NIC), and the Uganda Development Bank (UDB), to mention only a few. While marketing boards, in conjunction with the Co-operative Movement, are involved in the processing and marketing of agricultural products, parastatal bodies, as development corporations, are directly concerned with the saving-investment process. Although the bodies are under the aegis of the central government, they have separate administrative and capital budgets. However, they rely on the government for funds and for general policy directives.[49]

The following chapter will partly concern itself with some of these parastatal bodies.

---

[49] For further details on the UEB, see Gail Wilson, *Owen Falls: Electicity in a Developing Country* (Nairobi: East African Publishing House, 1967); and on the UDC, see G. Glentworth and M. Wozei, "The Role of Public Corporations in National Development in Uganda," *The African Review* (January 1972): 54-90.

CHAPTER III

FINANCIAL INSTITUTIONS IN UGANDA

The Ugandan financial system consists of three broad categories of institutions: the monetary authority, seven commercial banks, and numerous private and statutory non-bank financial intermediaries. This chapter will briefly analyse and describe the financial system so as to facilitate later asessments of the net contribution of the system to the country's development efforts.

A. The Monetary Authority

Before the inception of the East African Currency Board (EACB), the currency circulating in East Africa was the Indian rupee, signifying the importance of Indian trade and settlement in the region. The rupee had replaced cowrie shells that had acted as the medium of exchange for a long time.

After World War I, the (foreign exchange) market value of the rupee was plagued by severe fluctuations. Consequently, the rupee was removed from circulation and replaced by a new currency issue directly linked to the British pound sterling because of the firmly established British politico-financial influence in the region. In response to this need for a new currency, the East African

Currency Board was founded in London in 1919. The Board served not only East Africa but also Somaliland, Eritrea, Ethiopia, and Aden.[50] In Uganda, the Board continued to operate until 1966, when it was replaced by a national bank, the Bank of Uganda. As the Board doubtlessly contributed considerably to the evolution of the current Ugandan monetary system, a brief examination of its operation is in order.

The East African Currency Board, 1919-1966

Until 1955, the East Africa Currency Board virtually played the role of an automatic money changer, merely issuing and redeeming its currency--the East African shilling--against the pound sterling as need arose. It had no control over the quantity of money in the region, for that quantity fluctuated as the balance of payments position of the constituent countries fluctuated. Thus,

> leaving commercial bank credit out of account ..., *the cash base of the money supply was obviously determined, firstly, by the amount of sterling coming into the hands of people resident in East Africa, and, secondly, by the proportion of this foreign exchange in sterling which people wished to convert into local currency.*[51]

Neither did the Board have any control over the commercial banks in its sphere of influence, although the banks acted as its agents in dealing with the public.[52] In sum, the Board had no control over money supply in the region and, therefore, could not implement an independent monetary, or financial, policy.

---

[50] See Bank of Uganda, *Banking in Uganda*, ed. J.M. Mubiru (Kampala: Consolidated Printers, 1970), p. 3.

[51] Livingstone and Ord, *An Introduction to Economics for East Africa*, pp. 291-92. (Emphasis in original).

[52] Ibid., pp. 292-95.

In 1955, the Board ceased to be a mere money changer. It was authorized to invest up to Shs 200 million of its sterling reserves in securities issued or guaranteed by the governments of its member countries. Thus, it was given the power to participate in financing local development. In 1957, the limit of Shs 200 million was raised to Shs 400 million; and by 1965, this limit had been raised to Shs 700 million. These changes gave the board some control over money supply in East Africa. However, the Board still had no control over commercial banks.

The major change in operations of the Board occurred in 1960, when, apart from transferring its headquarters from London to Nairobi, the Board was allowed to:

1. engage in crop financing in East Africa up to a limit of Shs 100 million (raised to Shs 200 million in 1964);
2. increase its fiduciary issue from Shs 200 million to Shs 400 million;
3. permit commercial banks to open up accounts with it; and,
4. distribute its profits such that Uganda, Kenya, and Tanzania Mainland would each receive 28 1/6 per cent; Aden, 12 per cent; and Zanzibar, 3 1/2 per cent of the net profits.

The main objective behind these measures was to enable the Board to operate as an East African Central Bank once all member countries gained political independence (which was then imminent). The measures enabled the Board to act as a central bank:

> Through its authority to lend to local Governments and to commercial banks, within the limits indicated, the East African Currency Board had a certain degree of power and capability to expand credit similar to those possessed by Central Banks. However, unlike these, it lacked authority to control and contract credit.[53]

Unfortunately, the EACB never blossomed into a central bank because of lack of political unity in the region. As a result, the three East African countries, then served by the Board, decided in 1966 to create three separate central banks.

The Bank of Uganda

The Bank of Uganda Act, which established a central bank to take over the assets, liabilities, and functions of the defunct East African Currency Board, was passed on 24th May, 1966. The new Bank began to issue its own currency, the Uganda shilling, on 15th August, 1966, to replace the East African shilling. Up to 1972, the Act had undergone three amendments.[54]

The preamble to the Act spells out the main objectives of the Bank as follows: to ". . . issue legal tender currency and maintain external reserves in order to safeguard the international value of that currency, and promote stability and a sound financial structure conducive

---

[53] Bank of Uganda, *Banking in Uganda*, p. 6.

[54] The amendments are: Act 16 of 1968, *The Bank of Uganda (Amendment) Act, 1968*; Act 20 of 1970, *The Bank of Uganda (Amendment) Act, 1970*; and Decree 22 of 1971, *The Bank of Uganda Act (Amendment) Decree, 1971*.

to a balanced rate of growth of the economy . . . ." Thus, the Bank is to foster the development of the country. Governor Mubiru expanded on these objectives as follows:

> To do this it must operate on the sources of money--the Government's financial transactions and the credit and foreign exchange transactions of the commercial banks. Also since the savings of the community--especially in a developing economy such as Uganda's, where there is inevitably a low savings ratio--must be directed into uses that best serve the community, the Central Bank must ensure that the lending of the commercial banks is directed to the most economically desirable ends and is not wasted by excessive use for consumption or low priority productive purposes.[55]

The Bank's policy instruments are utilized so as to achieve these objectives.

The Bank is government-owned with an authorized capital of Shs 20 million--reduced to this level by the Bank of Uganda Act (Amendment) Decree of 1971, from the Shs 40 million stipulated by the 1966 Act. It is a corporate body with perpetual succession and a common seal and is administered by a board of directors. The board consists of a Governor, the Secretary to the Treasury, and six other members.

The Act specifies that any net profits of the Bank be distributed between the Government (the sole shareholder) and a General Reserve Fund established by the Act.[56]

---

[55] Bank of Uganda, *Banking in Uganda*, p. 1.

[56] Let GRF be the General Reserve Fund and BPK be the Bank's paid-up capital. The Act specifies the following distribution formula:

$GRF < 1/2BPK$: all net profits to the GRF.

$1/2BPK < GRF < BPK$: 25 per cent to GRF, 75 per cent to the Government.

$BPK < GRF < 2BPK$: 12.5 per cent to GRF, 87.5 per cent to

Total resources of the Bank have been growing over time.[57] Assets grew from Shs 330.1 million in 1966 to Shs 1,163.6 million in 1972, an increase of 252.5 per cent over the seven-year period.[58] The General Reserve Fund soared from Shs 2.0 million in 1967 to Shs 28.6 million in 1972. In general, the Bank has experienced remarkable growth since its inception.

The Bank of Uganda Act, 1966, and its subsequent amendments, as well as the "Banking Law" of 1969, stipulate various functions for the Bank.[59] The Bank acts as a banker, fiscal agent, and financial advisor to the central government. However, there are limitations to the volume of its lending to the government. The Bank's short-term loans for financing government recurrent expenditure may not exceed 15 per cent of the estimated recurrent revenue for the fiscal year under consideration.[60] Long-term loans--those with a term exceeding two years--may not exceed 30 per cent of the Bank's total demand liabilities. The Bank may also act as banker and fiscal agent to government

---

[56] (cont'd)the Government.
GRF > 2BPK: all net profits to the Government.

[57] See Table 3-1 below.

[58] The assets in millions were Shs 1,848.8 in 1973, Shs 2,247.5 in 1975, and Shs 4,183.4 in 1976. The Statistics Division of the Bank could not supply me with the breakdown of the assets for inclusion in Table 3-1.

[59] This law includes both Act 16 of 1969, *The Banking Act, 1969*, passed in March 1969; and Act 34 of 1969, *The Banking (Amendment) Act, 1969*, enacted in October 1969.

[60] However, Decree 22 of 1971 authorizes the Bank to "... make temporary advances in respect of temporary deficiences in recurrent revenue. . . which may not exceed eighteen *per centum* of the recurrent revenue of the Government." See *The Bank of Uganda Act (Amendment) Decree, 1971*, sec. (h), 26(1) and 26(2).

TABLE 3-1

BANK OF UGANDA: ASSETS AND LIABILITIES, 1966-1972 (END OF PERIOD DATA)

(Shs million)

	1966	1967	1968	1969	1970	1971	1972
1. ASSETS							
Total External Assets	125.8	216.3	320.5	341.8	401.7[2]	192.6	256.9
Securities: Government	146.5	150.5	85.7	181.2	208.9	483.1	527.2
Official Entities	45.2	60.0	60.0	60.0	60.0	60.0	60.0
Discounts and Advances							
Government	0.0	22.0	58.0	0.0	128.0	212.0	268.0
Banks	0.0	10.9	21.1	63.7	27.7	3.0	0.0
Other Assets	12.6	26.7	42.3	37.6	36.2	27.7	51.6
2. LIABILITIES							
Paid-up Capital	5.0	13.3	13.3	31.4	31.4	20.0	20.0
General Reserve Fund	0.0	2.0	4.0	8.6	24.1	26.6	28.6
Currency: Notes	266.8	367.5	433.6	523.4	594.2	592.9	633.9
Coins	0.0	17.7	26.7	34.9	37.3	40.2	40.4
Bankers' Deposits	34.3	46.7	50.2	32.1	64.6	66.5	112.6
Government Deposits	11.4	0.8	0.3	13.3	0.7	1.3	1.2
Official Entities' Deposits[1]	0.0	29.6	30.6	8.5	1.0	2.3	8.7
External Deposits	12.6[3]	3.6	3.5	7.2	3.7	82.1	92.6
Other Liabilities	0.0	5.2	25.4	24.9	105.5	146.5	225.6
TOTAL ASSETS/LIABILITIES	330.1	486.4	587.6	684.3	862.5	978.4	1163.6

SOURCES: 1. 1966-1970: Bank of Uganda, *Annual Report, 1971-1972*, Tables 26-27, pp. 67-68.
2. 1971-1972: Uganda Government, *1973 Statistical Abstract*, Tables L. 3 and L. 4, p. 74.

[1] The "Officail Entities" are the parastatal bodies.

[2] This figure includes the SDRs and the gold tranche in the IMF.

[3] This figure includes external loans.

institutions and agencies, and local governments.[61]

The Bank also acts as the bankers' bank, that is, the banker to commercial banks and other credit institutions. In this respect, it accepts deposits from them, makes payments on their behalf, and operates an interbank clearing mechanism. It is also empowered to buy, sell, discount, or rediscount treasury bills (maturing within 93 days), inland bills of exchange, and promissory notes. It may also purchase, sell, discount, or redisount foreign bills of exchange and treasury bills (maturing within 184 days), and acquire or dispose of securities in freely convertible currencies.

Besides, the Bank, whenever necessary, acts as the "lender of last resort" to all financial institutions. Banks may also obtain advances from the Bank for periods each not exceeding three months, at a rate of interest not less than one per cent above the Bank's minimum rediscount rate (that is, the minimum rate of rediscount of treasury bills which will mature within 91 days from the date of discount). This minimum rediscount rate is announced by the Bank from time to time.

Further, the Bank manages Uganda's external reserves. For the purpose of ensuring external solvency of the country, it is stipulated that the reserves must be maintained at a level not less than 40 per cent of the Bank's total demand liabilities. The external assets are to consist of any, or all, of the following items: gold, balances in sterling or other convertible currencies, bills of exchange and treasury bills in currencies convertible into gold or sterling, and ". . . any external fund, facility, or drawing rights which the Minister of Finance, after due consultation with the Bank, considers acceptable for inclusion."[62]

---

[61] Ibid., sec. (9), (7).

With the approval of the Minister, the Bank may also hold and sell shares of any corporation established by the government or with its approval. This power enables the Bank to facilitate the financing of development. Nevertheless, the Bank's holding of such shares may not exceed 25 per cent of the total amount in its General Reserve Fund.

Lastly, the Bank is empowered to control credit whenever need arises. In this regard, the Bank may, in reference to commercial banks, prescribe:

1. the maximum amounts of investments, loans, advances, or notes discounted;
2. the purpose for which loans may be granted;
3. the maximum period of the loans and advances and the minimum security required;
4. the maximum or minimum rates of interest on any type of deposit or loan;
5. the minimum and maximum cash reserve ratios to be maintained by banks; and,

---

[62] Ibid., sec. (f).

6. the minimum liquid-assets ratio that a bank should hold at any time.

The Bank may also influence operations of the banks through periodic inspections and reviews of monthly and annual financial, statistical, and accounting statements they must legally submit to it.[63] And the Bank may apply any or all of the above provisions to other institutions ". . . provided that the same provisions shall apply to all credit institutions of a given class."[64]

The above provisions constitute the instruments of monetary policy available to the Bank. As Newlyn observes,

> . . . it is very difficult to imagine that a central bank would ever wish to do anything which does not come within the very wide terms of these powers.[65]

B. Commercial Banks

The Ugandan commercial banking system comprises seven banks: the Uganda Commercial Bank (UCB), the Grindlays Bank, the Standard Bank, the Barclays Bank, the Bank of Baroda, the Libyan-Arab-Uganda Bank, and the Co-operative Bank.

The Uganda Commercial Bank is a fully state-owned corporation established by Act 22 of 1965. The bank took over all the assets and liabilities of, and property vested in, the Uganda Credit and Savings Bank[66] which had been in operation since 1950.[67] As a government agency, the bank administers various development funds and participates in "the buying, receiving, collecting and remitting of money, bullion and securities on behalf of the Government," and any other financial business of the government.[68]

---

[63] See the Banking Law, 1969; and ibid., sec. (j).

[64] See *The Bank of Uganda Act (Amendment) Decree, 1971*, sec. (i)

[65] Walter T. Newlyn, *Comparative Analysis of Central Bank Acts*, Makerere Institute of Social Research, EDRP No. 101 (1968), p. 10. The same idea is expressed in Chapter 9 of his *Money in an African Context* (Nairobi: Oxford University Press, 1967).

Five of the banks (Grindlays, Standard, Barclays, Baroda, and Libyan-Arab-Uganda) are expatriate (foreign-owned) banks. The first three of these are branches of multinational banks headquartered in London; these multinationals have numerous branches in many former British colonies, such as Kenya, Zambia, and Malawi. The Bank of Baroda is based in India, and is also a multinational corporation with branches in other countries. Finally, the Libyan-Arab-Uganda Bank was established in 1972 as a joint undertaking by the Libyan and Uganda governments.

The Co-operative Bank is owned by the Co-operative Movement in Uganda. It started operating as a commercial bank in 1975. Most of its activities are with co-operative societies and marketing boards.

The Grindlays Bank started operating in Uganda in 1906. It served as the government banker until the founding of the Bank of Uganda. In 1970, following the enactment of the

---

[66] See Act 22 of 1965, *The Uganda Commercial Bank Act, 1965*, sec. 5.

[67] For a detailed analysis of the functions and activities of the defunct Uganda Credit and Savings Bank, see George R. Bosa, *The Financing of Small-Scale Enterprises in Uganda* (Nairobi: Oxford University Press, 1969), pp. 20-34.

[68] See *The Uganda Commercial Bank Act, 1965*, sec. 3, (v).

Banking Law, 1969, the bank took over two small banks in the country: the Algemene Bank Nederland and the Ottoman Bank. The Standard and Barclays were established in Uganda in 1910 and 1925, respectively. In 1970, the latter absorbed the Commercial Bank of Africa which had been established in the country during the 1960s.

Before the Banking Law, all commercial banks other than the UCB were mere branches of British or Indian banks. with no permanent capital in the country. To finance their operations in Uganda, they relied heavily on local depositors' funds and on temporary inflows of funds from their head offices in cases of peak credit demands. However, as a consequence of the Banking Law, all banks were incorporated in the country in 1970 and their minimum paid-up capital was raised to Shs 20 million.[69] An amendment to the Law in 1970 put the government in control of the institutions--with a 60 per cent participation in their capital. A further amendment to the Law in 1971 denationalized the banks. It restored the old ratio of 49:51 in favour of private participation in the banks' capital.

Organization

Each bank is managed by a Board of Directors, including a Chairman and a Deputy Chairman. The banks have head offices in Kampala and about 300 branches, sub-branches, agencies, and mobile units all over the country. Before 1973, most of the branches belonged to the "big three" banks: the Grindlays Bank, the Barclays Bank, and the Standard Bank. But in 1973, following the "Economic War," a decree was promulgated "advising" all government departments, parastatal bodies, and "businessmen who had taken over businesses left behind by the Asians and Britons" to bank with the Uganda Commercial Bank only. The immediate consequence of the "advice" was to diminish considerably the number of customers for the expatriate banks, especially at their up-country branches. In fact, the banks lost so much business that, eventually, they invited the indigenous Uganda Commercial Bank to take over almost all their up-country branches. By 1975, only the Bank of Baroda (which had merged with the Bank of India in 1970) had a branch outside Kampala. Thus, the decree virtually made the Uganda Commercial Bank "the" commercial bank of Uganda. It owns over 50 per cent of the resources of the banking system in the country.

---

[69] See *The Banking (Amendment) Act, 1969*, sec. 2A(a).

The Resources of the Banks

The resources of the banks rose from Shs 329.0 million in 1950 to Shs 3,534.5 million in 1973, a rise of 974.3 per cent over the period, as Table 3-2 and 3-3 show. This growth was brought about mainly by a fairly steady rise in deposits. Deposits account for over 60 per cent of the total resources; and demand deposits account for about

TABLE 3-2

COMMERCIAL BANKS IN UGANDA: ASSETS, 1950-1973

(Shs million)

Year	Cash Reserves	Government Securities	Investments (Stocks & Shares)	Agri-cultural Loans	Other Loans	Fixed and Other Assets	TOTAL ASSETS
1950	104.0	75.1	5.4	126.9		17.6	329.0
1951	98.9	127.5	0.0	276.0		7.4	509.8
1952	120.1	123.1	0.0	314.1		24.8	582.1
1953	102.6	147.2	0.0	216.9		27.9	494.6
1954	86.6	191.6	0.0	211.7		23.8	513.7
1955	100.0	257.7	0.0	133.0		61.3	552.0
1956	70.4	241.5	2.1	164.7		82.8	561.5
1957	51.6	248.4	2.4	169.3		50.6	522.3
1958	73.5	239.4	20.5	118.8		85.6	537.8
1959	59.6	262.5	24.0	109.1		51.4	506.6
1960	47.9	283.0	2.5	101.0		64.3	498.7
1961	38.4	202.0	7.0	160.3		49.9	457.6
1962	44.6	260.7	2.0	100.0		82.0	489.3
1963	42.7	276.9	5.4	200.0		75.2	600.2
1964	45.0	358.3	5.3	315.2		70.3	794.1
1965	44.1	146.8	42.6	765.4		65.1	1,064.0
1966	49.6	204.0	60.7	585.4		74.3	974.0
1967	42.5	306.1	59.7	583.4		75.0	1,066.7
1968	129.4	109.1	44.2	305.4	314.1	106.2	1,008.4
1969	117.5	167.6	34.6	403.1	420.3	117.7	1,260.8
1970	158.4	229.2	19.0	401.5	478.3	140.3	1,427.2
1971	164.9	242.0	29.1	336.7	562.5	259.8	1,595.0
1972	221.2	652.1	24.7	373.4	577.2	564.8	2,413.4
1973	244.8	1,044.5	18.7	468.2	705.6	1,052.7	3,534.5

SOURCES: Uganda Government, *Statistical Abstracts*, various issues; Bank of Uganda, *Annual Report, 1971-1972*, pp. 67-68; and East African Community, Statistical Division, *Quarterly Economic and Statistical Review*, various issues.

TABLE 3-3

COMMERCIAL BANKS IN UGANDA: LIABILITIES, 1950-1973

(Shs million)

Year	Deposits	Bills and Accounts Payable[2]	Other Liabi-lities	Capital	Reserves[1]	Profit or Loss	TOTAL LIABILITIES
1950	251.7	0.0	16.4		60.9		329.0
1951	293.0	0.4	2.5		213.8		509.8
1952	389.3	1.6	14.4		176.7		582.1
1953	351.8	3.2	16.7		122.8		494.6
1954	367.0	1.9	16.9		125.8		513.7
1955	346.1	7.4	48.3		150.2		552.0
1956	325.8	10.2	70.4		154.9		561.5
1957	298.9	15.1	34.6		173.6		522.3
1958	342.8	12.8	40.5		121.7		537.8
1959	336.9	16.1	27.2		126.5		506.6
1960	266.7	14.0	32.8		185.2		498.7
1961	313.7	17.4	25.4		101.1		457.6
1962	357.5	20.1	42.7		69.0		489.3
1963	394.3	19.3	33.7		152.9		600.2
1964	556.5	25.1	44.3		168.2		794.1
1965	741.1	60.1	62.9		200.0		1,064.0
1966	673.6	14.0	86.4		200.0		974.0
1967	754.5	24.1	88.1		200.0		1,066.7
1968	847.2	45.3	74.5	130.0	11.4	0.0	1,008.4
1969	909.0	68.6	136.4	130.0	15.0	1.8	1,260.8
1970	1,111.1	41.1	106.5	130.0	20.0	18.4	1,427.2
1971	1,128.0	166.5	103.7	130.0	35.7	31.1	1,595.0
1972	1,557.7	470.6	203.9	110.0	46.0	25.2	2,413.4
1973	2,149.6	815.3	314.7	130.0	41.9	83.0	3,534.5

SOURCES: Same as for Table 3-2.

[1] includes provisions for bad and doubtful debts.

[2] Up to 1967 the data refer to "balances due to other banks."

two-thirds of the deposits. Interest rates paid by the banks on deposits range from zero (on demand deposits) to just over 4 per cent per annum (on fixed time deposits).[70]

The banks' borrowings take the form of direct advances and commercial paper, treasury bills, and crop finance bills discounted by the Bank of Uganda. As Table 3-3 shows, the value of bills and accounts payable rose from Shs 0.4 million in 1951 to Shs 815.3 million in 1973. The "other liabilities" (clearing balances, interbank borrowings, expenses payable, regularization accounts, and the banks' borrowings from the central bank) rose from Shs 16.4 million in 1950 to Shs 314.7 million in 1973. The remarkable increase in both bills and accounts payable and "other liabilities" stresses the increased importance of bank borrowing. It also signifies the extent to which bank operations have progressed over the period.

Capital, reserves, and profit account for about 8 per cent of the banks' total liabilities. As pointed out earlier, each bank must have a paid-up capital of Shs 20 million. This capital should be invested in: (1) government securities; (2) loans to finance government-backed projects; (3) special loans to parastatal bodies; (4) share capital of a development corporation in Uganda; or, (5) premises.

Lending

The predominant element in the banks' business on the asset side is lending. Loans to the government are made by purchasing government securities. As Table 3-2 shows, by 1973, the value of government securities had risen from Shs 75.1 million to Shs 1,044.5 million, an increase of 1,290.8 per cent over the 24-year period. In 1973, government securities accounted for 29.6 per cent of the banks' assets. Lending to the agricultural and other sectors accounted for 33.2 per cent of the assets in 1973. Since 1967, total loans by banks have shown a steady increase, although the volume of loans to the agricultural sector fluctuated.

---

[70] See Bank of Uganda, *Annual Report, 1971-1972*, p. 82.

Before 1967, most of the loans were directed to the commercial and industrial sectors of the economy; the agricultural sector, the backbone of the country, received the smallest proportion of the loans.[71] To correct this anomaly, ". . . to curb inflationary tendencies and to assist in strengthening external reserves," the Minister of Finance, in 1967, *directed* the banks to reduce their loans and advances in "less-essential categories" and increase their lending to the "essential category."[72] Although the directive was withdrawn within two years because it had achieved its objectives, the banks to date have continued to favour "essential" groups in their lending activities.[73]

---

[71] See Table 3-4.

[72] See Irving Gershenberg, "Banking in Uganda Since Independence," *Economic Development and Cultural Change* 20 (April 1972): 120.

[73] Sectors included in the "essential" group are the government, agriculture, mining and quarrying, manufacturing, electricity and water, transportation, building and construction, and certain trade and commerce activities. The others, such as real estate and personal

TABLE 3-4

COMMERCIAL BANK SECTORAL LOANS AND ADVANCES AS PERCENTAGES OF TOTAL LOANS AND ADVANCES, 1960-1972

Year	Loans to AGRICULTURE as % of Total Loans	Loans to INDUSTRY as % of Total Loans	Loans to COMMERCE[1] as % of Total Loans	Loans to OTHER SECTORS[2] as % of Total Loans
1960	13.3	46.9	32.2	7.6
1961	13.3	43.0	35.3	8.4
1962	18.0	46.8	25.9	9.3
1963	18.2	40.6	32.9	8.3
1964	15.5	35.0	37.9	11.6
1965	8.7	34.1	48.1	9.1
1966	9.2	32.9	51.1	6.8
1967	7.4	45.6	41.4	5.6
1968	5.8	46.5	41.0	6.7
1969	15.9	46.0	28.9	9.2
1970	46.8	22.0	19.6	11.6
1971	39.2	25.0	22.1	13.7
1972	43.4	22.6	22.2	11.8

SOURCES: 1. 1960-1968: Irving Gershenberg, "Banking in Uganda since Independence," *Economic Development and Cultural Change* (April 1972): 517.
2. 1969-1972: Uganda Government, *1973 Statistical Abstract*, Table L. 9, p. 76.

[1] Commerce includes agricultural marketing, wholesale and retail trade, financial institutions, oil companies, transportation, and communications.

[2] This includes loans to individuals and to real estate.

For example, in June 1972, lending to the essential group accounted for 82.7 per cent of total lending, and in June 1973, it accounted for 82.4 per cent of total lending.[74]

Further, most of the loans by commercial banks, unlike those by insurance companies and parastatal bodies, are of a short-term nature.[75] On this point, Pauw states:

> A characteristic feature of the East African banking system is that the commercial banks engage, almost exclusively, in the granting of short-term credit which runs on the average for between 3 and 6 months. The reason why they pursue this policy lies in the British banking philosophy . . . with its preference for the short-term, self-liquidating type of credit business, the object being to avert in large measure any risk of illiquidity.[76]

Thus, exporters of raw materials and importers of consumer goods are generally favoured in the granting of loans and advances by the banks as these activities involve mainly short-term loans.

One of the main reasons for the difference in the terms of loans by banks and those by, say, insurance companies is

---

[73] (cont'd)loans, are included in the "less-essential" group.

[74] See Uganda Government, *1973 Statistical Abstract*, Table L. 9, p. 76.

[75] Unfortunately, I could not get data on the breakdown of the loans according to maturity periods. Such data, I was informed, are confidential. However, officials of the Credit Department of the Uganda Commercial Bank assured me that most of the loans the banks grant are indeed on a short-term basis. It is the insurance companies and development corporations that engage in long-term lending.

[76] Ernst-Josef Pauw, "Banking in East Africa," in Peter Marlin, ed., *Financial Aspects of Development in East Africa* (Munich: Weltforum Verlag, 1970), p. 199. The same observation was made by Gershenberg. See Irving Gershenberg, "Multinationals and Development: Commercial Banking in Uganda," *Africa Today* No. 4 (1974): 19-27. Also see Holger L. Engberg, "Commercial Banking in East Africa," in E.H. Whetham and J.I. Currie, eds., *Readings in the Applied Economics of Africa, Volume 2: Macroeconomics* (Cambridge: Cambridge University Press, 1967), pp. 48-69.

that the banks' funds consist mainly of deposits while insurance companies' funds come mainly from life policy premiums.[77] Insurance policies are for long-term periods (usually over 15 years) and, therefore, insurance companies can afford to lend out these funds for long periods. But deposits are, in general, of a short-term nature, and, therefore, deposited funds may not be lent out on a long-term basis.

Interest rates on loans to government do not usually exceed 10 per cent per annum, as Table 3-5 shows. In 1972, 56.9 per cent of the loans granted at interest rates under 7 per cent went to the agricultural sector; and most of the loans at interest rates of 12 per cent and over went to agriculture, building, and construction. Finally, interest rates on personal loans may be as high as 12 per cent (and over) per annum.

Liquidity of Banks

Ugandan banks have no liquidity problems. Liquidity assets in Uganda's case comprise vault cash, net deposits with the Bank of Uganda, demand deposits and money at call, Uganda treasury bills, government securities with a term not exceeding five years, net demand balances held in foreign banks, and commercial bills and promissory notes eligible

---

[77] As Table 3-2 shows, the main source of funds for commercial banks is the deposits.

TABLE 3-5

PERCENTAGES OF COMMERCIAL BANK LOANS AT VARIOUS INTEREST RATES FOR DIFFERENT TYPES OF BUSINESS, DECEMBER 1972

	Under 7%	7% to 8%	8% to 9%	9% to 10%	10% to 11%	11% to 12%	12% and over
Government	13.6	7.4	2.5	0.7	0.0	0.0	0.0
Other Public Entities[1]	0.1	8.0	16.9	2.0	8.6	0.0	0.0
Agriculture[2]	56.9	28.7	41.4	29.5	3.4	38.5	33.0
Manufacturing	1.6	21.1	18.9	17.9	68.8	1.0	5.3
Retail Trade	0.2	8.1	2.1	14.8	0.9	31.0	0.0
Wholesale Trade	0.0	19.5	1.6	8.5	0.0	0.5	8.8
Export	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Building & Construction	1.7	0.0	2.9	6.6	0.9	14.5	13.5
Real Estate Mortgage	9.1	0.1	0.4	0.9	0.2	0.0	7.7
Transportation	0.0	0.0	0.7	7.3	0.3	4.3	7.2
Financial Intermediaries	0.0	3.2	1.0	0.0	6.7	0.0	0.4
Personal	13.6	0.5	0.3	5.4	0.4	4.8	12.6
Bills of Exchange	1.7	3.1	0.0	0.1	5.8	0.0	0.0
Other	1.4	0.1	11.3	6.3		5.4	11.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE: Based on Uganda Government, *1973 Statistical Abstract*, Table L. 10, p. 77.

[1] These are the total parastatal and quasi-government loans whether or not falling under agriculture, manufacturing, or other categories.

[2] Loans to marketing boards are excluded here.

for discount at the Bank of Uganda.[78] The Bank of Uganda is empowered to set cash and liquidity ratios which the banks must legally maintain. As Table 3-6 shows, the banks' cash ratio (the ratio of cash to total deposits) fluctuated between a low of 6.2 per cent in the first quarter of 1970 and a high of 9.7 per cent in the fourth quarter of 1971. During the period, the legal cash ratio was fixed at 3 per cent.

As Table 3-6 illustrates, the Ugandan banks are usually "over-liquid" in terms of cash and liquidity ratios. For example, in the 1969-1973 period, the banks' cash and liquidity ratios were over and above the legally fixed ratios throughout the period. The banks' actual liquidity ratio varied between 25.8 per cent in the first quarter of 1969 and 53.2 per cent in the last quarter of 1973.

Interbank Relations

Before the Banking Law, 1969, the short-term indebtedness of the British banks in Uganda to their headquarters was either negligible or a minute proportion of their total business. Despite the fact that the banks used to bring foreign exchange into the country in periods of peak demand, they still acted as catalysts in the resource-drainage mechanism. This point will merit further elaboration and investigation at a later stage.

As for the Indian banks, before 1969, their total

---

[78] See *The Banking Act, 1969*, sec. 4, (5), (a) - (g).

TABLE 3-6

UGANDA'S COMMERCIAL BANKS' LIQUIDITY POSITION, 1969-1973

Year and Quarter	Total Deposits (Shs m)	Total Liquid Assets Held		Total Liquid Assets Required by Law		Cash Ratio[1] (%)
		Value (Shs m)	(Actual) Ratio(%)	Value (Shs m)	(Legal) Ratio(%)	
1969 I	854.8	220.6	25.8	153.2	17.9	7.7
II	870.4	231.7	26.6	155.6	17.9	8.6
III	926.1	269.2	29.1	168.7	18.2	6.8
IV	909.9	326.6	35.3	171.2	18.5	8.1
1970 I	1,000.5	398.3	39.8	190.8	19.1	6.2
II	1,071.6	441.2	41.2	191.0	17.8	6.9
III	1,090.7	484.3	44.4	190.9	17.5	6.5
IV	1,111.1	431.0	38.8	190.2	17.1	9.1
1971 I	1,179.5	502.7	42.6	218.3	18.5	8.0
II	1,157.7	521.6	45.1	205.0	17.7	8.6
III	1,192.1	497.7	41.7	210.9	17.7	6.8
IV	1,128.0	471.2	41.8	210.0	18.6	9.7
1972 I	1,219.7	653.5	53.6	230.8	18.9	6.7
II	1,299.5	662.5	51.0	237.7	18.3	6.8
III	1,408.4	924.7	65.7	263.0	18.7	6.7
IV	1,557.7	1,002.0	64.3	278.3	17.9	6.5
1973 I	1,713.4	1,105.7	64.5	326.5	19.1	n.a.
II	1,894.2	1,026.1	54.2	357.2	18.9	n.a.
III	2,061.8	1,028.1	49.9	364.9	17.7	n.a.
IV	2,149.6	1,143.7	53.2	396.1	18.4	n.a.

SOURCES: 1. 1969-1972: Bank of Uganda, *Annual Reports*, various issues.
2. 1973: Bank of Uganda, Statistics Division, Kampala.

[1] The legal cash ratio has been 3 per cent since 1966.

lending often exceeded their deposits, so that, on the whole, they were indebted to their overseas head offices.[79] Apart from the fact that they served only a particular community (the Indian community), these banks were net importers of foreign exchange into Uganda.

For the indigenous Uganda Commercial Bank, the situation was different. The bank was (and, like the Co-operative Bank, still is) obliged to pay particular attention to its liquidity position as it has no overseas head office to fall back upon in stringent times.

After the Banking Law, the picture changed to some extent, although the whole financial system is still an active participant in the London money and capital markets.[80] One of the things that changed very little was the interbank relations embodied in "The Summary of Banking Arrangements" of 1929. These "Arrangements" constituted an agreement among the British banks, effectively establishing a cartel. All the banks in East Africa, including indigenous banks, had to join the cartel, for conformity was directly linked to full clearing-house membership. The cartel fixed terms and charges for every banking transaction. For instance, minimum loan interest rates as well as service charges and maximum rates payable on deposits were spelled out by the "Arrangements." Further, "acceptance of all types of deposits, other than those for which provision is specially made in the Summary of Banking Arrangements is prohibited."[81]

---

[79] A fuller account of the indebtedness of the East African banks to their overseas headquarters is provided by Pauw, "Banking in East Africa."

[80] For example, in March 1970, banks, insurance companies, and Trust Fund organizations held Shs 1.4 million worth of Uganda Government stocks floated on the London Stock Exchange. See Bank of Uganda, *Annual Report, 1971-1972*, Table 38, p. 79.

The initiators of the cartel explained that it aimed at achieving three objectives. First, it would provide banks with enough income to maintain an extensive branch network and to ensure stability of the banking system. It was argued that unrestricted competition would so impair banks' incomes that they would be unable to expand their branch network extensively. Second, by harmonizing the banks' rates and charges, competition among the banks would be based on quality of services rather than their prices. However, it has been argued that the cartel instead created inefficiencies in the system because of lack of effective competition; and that the region is "over-banked."[82] Third, it was claimed that the monopoly position would offer permanence in the banks' terms of business, which permanence would benefit customers. Again, it appears that if the banks raised their interest rates on deposits, they would attract more customers by discouraging hoarding insofar as the supply of customers' funds is interest-elastic.[83]

---

[81] See the *Summary of Banking Arrangements*; also quoted in Pauw, " Banking in East Africa," n. 55, p. 233.

[82] See John Loxley, *Financial Intermediaries and Their Role in East Africa*, Makerere Institute of Social Research, EDRP No. 410, 1967. p. 7.

[83] Loxley argues that one of the reasons why the Post Office Savings Bank has lost business to other financial intermediaries is that its interest rate of 2.5 per cent per annum is lower than the 3-5 per cent per annum offered by

Other interbank arrangements and associations, such as the Uganda Bankers' Association, have emerged. These deal with things like wage and salary policies, banking procedures, and personnel recruitment and training.

Expatriate versus Indigenous Banks

As concerns customer services, there is hardly any difference between expatriate and indigenous banks in Uganda. But differences emerge in relation to the resource-drainage mechanism referred to earlier. Expatriate banks tend to encourage and/or exacerbate the "leakages" more than indigenous institutions do. Gershenberg on this point writes thus:

> One of the principle advantages in having an expatriate banking system is the supply of foreign exchange the system could bring into the country from their head offices. By being net debtors, the expatriate banks serve to ease any foreign exchange constraints on growth. This benefit must, however, be weighed against the cost in foreign exchange of servicing these loans as well as the loss of control over the monetary system that comes with banks having access to funds from external sources.[84]

They may also be repatriating portions of their profits and other incomes domestically accumulated.[85]

---

[83] (cont'd)the others. Ibid., pp.11-12.

[84] Gershenberg, "Banking in Uganda since Independence," p. 512.

[85] A fuller discussion of this phenomenon is found in Gershenberg, "Multinationals and Development;" and in Sweezy, "Multinational Corporations and Banks."

C. Non-bank Financial Institutions in Uganda

The main non-bank financial intermediaries in Uganda fall into two categories: development-finance parastatal bodies and private and public insurance companies and other credit institutions.

Development-Finance Parastatal Bodies

There are three basic functions financial institutions perform: they serve as reservoirs for the accumulated liquid savings of the community, some of them supply the community with a medium of exchange, and they allocate the savings among competing investment opportunities. They may, therefore, stimulate and sustain initiative and enterprise for the creation, transformation, or expansion of industrial and other ventures.

The Ugandan development corporations, like similar corporations elsewhere, were created specifically to contribute to the implementation of the third function. As we have seen, Uganda's commercial banking system primarily handles short-term credit, yet more often than not, farmers, industries, co-operatives, and traders and other individuals require long-term credit. The government responded to this need for long-term credit by founding appropriate parastatal bodies and by establishing various funds. The Development Loan Fund (DLF), the National Trust Fund (NTF), the Uganda Development Corporation (UDC), the Housing Finance Company of Uganda (HFCU), and the Uganda Development Bank (UDB) are cases in point. Of these bodies, the UDC and the UDB are the most important.

The Uganda Development Corporation (UDC). The UDC was founded in 1952

> with the objective of facilitating the industrial and economic development of Uganda; promoting and assisting in the financing, management and establishment of new undertakings and schemes for the better organisation and modernisation of industrial and commercial enterprises; and the conduct of research into the industrial and mineral possibilities of Uganda. In carrying out these functions, the corporation was to have due regard to the economic and commercial merits of the undertakings it promotes, assists, finances, or manages.[86]

The Uganda Development Corporation has satisfactorily carried out its functions, either independently or in conjunction with other domestic and foreign agencies. By 1970, the corporation's assets had reached a level of Shs 215.1 million.[87] The corporation finances its operations from its accumulated profits (which amounted to Shs 18.0 million in 1966), grants from the government, and borrowings secured by the government. It also sells shares of its successful subsidiaries. By 1965, its reserves had soared to Shs 66 million; and it had formed, acquired equity in, and granted loans to many companies in Uganda.[88]

---

[86] Uganda Governmemt, *The Action Programme*, par. 2.24, p. 46.
[87] See Uganda Development Corporation, *Annual Report, 1971* and *Annual Report, 1972*. The corporation's total assets in millions were Shs 116.1 in 1966, Shs 166.9 in 1967, Shs 190.0 in 1968, and Shs 194.6 in 1969.
[88] See Pauw, "Banking in East Africa," p. 223; and Mamdani, *Politics and Class Formation in Uganda*, Chapter 7.

The Uganda Development Bank (UDB). Like the UDC, the UDB is a government-owned corporation. It was established by decree in 1972

> (a) to promote and finance development . . . ; (b) to provide finance in the form of short, medium, and long-term secured loans by purchasing or subscribing for shares or other securities, or by acquiring any other interest; (c) to acquire share holdings in any company and to establish subsidiary companies; (d) to make funds available for reinvestment by selling any investment of the Bank when and as appropriate; (e) to draw, accept, or endorse bills of exchange for the purposes of the business of the Bank; and, (f) to do any such other things as are incidental or conducive to the fulfillment of the objects of the Bank.[89]

Its initial authorized capital was Shs 100 million, all provided by the government.

The development bank may borrow, or guarantee, any sum of money from any domestic or foreign source. However, the Minister of Finance may impose limits to such monies if need arises.

The decree also established simultaneously a General Reserve Fund and a Credit Guarantee Fund, both under the bank's control.[90] The General Reserve Fund is to consist of the net profits of the bank. Net profits may stop flowing into the Reserve Fund when the reserves in the Fund are equal to the bank's paid-up capital. After that the bank will decide what is to be done with subsequent profits. The Credit Guarantee Fund comprises contributions from the government, commercial banks, and any other body or source.

---

[89] See Decree 23 of 1972, *The Uganda Development Bank Decree, 1972*, sec. 3.
[90] Ibid., sec. 6 and sec. 7.

The Guarantee Fund is used to assist businessmen "with neither sufficient security nor previous ascertainable business experience" to secure loans from banks and other credit institutions.[91]

The Housing Finance Company of Uganda (HFCU) and the Development Finance Company of Uganda (DFCU) are now subsidiaries of the Uganda Development Bank. The bank has also taken over all government-owned development funds, like the Development Loan Fund (DLF) and the Beef Ranching Development Project Fund. The DFCU finances mainly industrial projects, and the HFCU specializes in housing finance.[92]

The total assets of the UDB in millions were Shs 56.1, 1973; Shs 98.8, 1974; Shs 99.5, 1975; Shs 128.9, 1976; and Shs 153.9, 1977.[93] Thus, the bank's resources increased by 174.3 per cent over the five-year period.

Other Government Bodies. These include the East African Development Bank (EADB), established in 1968, and the Post Office Savings Bank (POSB), which started operating in Uganda in 1936.

The EADB was designed to promote industrial development

---

[91] Ibid., sec. 7, (3) and (4).
[92] The DFCU was set up jointly by the Uganda Government and the Commonwealth Development Corporation. Similar corporations were founded in Kenya and Tanzania. For the Tanzanian case, see Binhammer, *The Development of a Financial Infrastructure in Tanzania* (Dar es Salaam: East African Literature Bureau, 1975).
[93] See Uganda Development Bank, *Annual Reports*, various issues.

in East Africa and to facilitate a more equitable and complementary distribution of industries among the partner states (Uganda, Kenya, and Tanzania) of the defunct East African Community. Of the total loans by the bank, Uganda and Tanzania were each to acquire 38.75 per cent, and Kenya the remaining 22.5 per cent. This loan distribution formula was intended to bring equality in industrial development in the region in the long run. By 1971, the bank had extended loans to Uganda amounting to Shs 36.7 million. The demise of the Community in 1977 has left the future of the EADB extremely uncertain.

The objective of the Post Office Savings Bank is to provide "a ready means for the deposit of savings so as to encourage thrift." The net balances (net deposits) of the bank were Shs 33.0 million in 1960, after which they experienced a falling trend. By 1965, they had decreased to Shs 23.9 million. The balances then rose to Shs 24.1 million in 1972.[84] In general, the bank's net balances have declined over the period. The main reason for the decline is the tough competition offered by other financial intermediries which offer higher rates of interest than the bank's traditional 2.5 per cent per annum (raised to 3 per cent in 1973). However, the Post Office Savings Bank has had the widest geographical coverage within the country among individual credit institutions. Because of this

---

[84] See Uganda Government, *1970 Statistical Abstract*, Table L. 14, p. 85; and *1973 Statistical Abstract*, Table L. 11, p. 77.

factor, the bank reaches more people than any institutions hitherto discussed. Hence, its important role in stimulating savings even from remote villages should not be underestimated.

Insurance Companies and Other Credit Institutions

There are four *active* insurance companies in Uganda, namely, The National Insurance Corporation, the East African General Insurance Company, the Uganda-American Insurance Company, and the British American Insurance Company. In addition, there are four *inactive* insurance companies: Jubilee Insurance Company, United Assurance Company, Crusader Insurance Company, and Pan-African Insurance Company. The second group of companies is inactive in the sense that they are in the process of winding up their business in Uganda. They do not accept new customers.

In 1970, all companies writing insurance policies in Uganda were required by law to incorporate locally, each with a minimum capital of Shs 5 million. The currently *active* companies decided to obey the law, while the *inactive* companies decided to close down instead. Before the passage of the law, the Crusader Insurance Company was the largest insurance company in the country in terms of total assets. However, currently, the National Insurance Corporation (NIC) is the largest, followed by the other three active insurance companies in the order they are listed. Total assets of all insurance companies in Uganda amount to about a quarter of those of the banking system.

All companies other than the National Insurance Corporation are branches of multinational corporations. The East African General Insurance Company is an Indian company; the Uganda-American Company is a subsidiary of America Life, an American company; and the British American Company is a British company. In addition, all the insurance companies, except the British American Insurance Company, handle the two broad types of insurance: life and casualty. Most of the policies in the life assurance category are life policies with saving clauses. While the premium payments for the life assurance must be put aside as reserves to fund future obligations to pay, the premium income from casualty insurance--such as fire, accident, and automobile insurance--is normally expected to cover only current claims and operating costs. So, it is mainly the life assurance activity that generates substantial funds for investment and makes insurance companies a very important financial intermediary.

Most of the companies' funds are invested in treasury bills and government stocks, or as direct loans to the government and to parastatal bodies, or as deposits at other institutions. For example, in 1976, the Uganda-American Insurance Company's investments were distributed as follows: 40.4 per cent of investable funds in government stocks, demand notes, and treasury bills; 28.7 per cent in deposits at interest; 20.8 per cent in loans on life policies; and the rest in mortgage and car loans.[95]

Insurance companies in Uganda are now supervised by the Commissioner of Insurance, who co-ordinates their activities and organizes the collection and compilation of insurance data, among other things.[96] In addition, each insurance company must deposit with the Bank of Uganda at least Shs 1.0 million. The central bank uses such funds to purchase short-term securities, or in short-term loans.[97]

The indigenous company is the wholly government-owned National Insurance Corporation (NIC), established in 1964, with authorized capital of Shs 5 million.[98] As Table 3-7 shows, the NIC has operated successfully; its resources rose from a level of Shs 2.7 million in 1965 to Shs 145.7 million in 1973. Its premium income, as well as the level of the General Reserve Fund, have also shown remarkable progress over the period. "As a result of increased funds, the Corporation invested Shs 2,000,000 share capital in a wholly-owned subsidiary--M/S. Uganda Hire Purchase Co. Ltd.--and gave interest-bearing loans amounting to Shs 6,500,000 for its smooth running."[99] The subsidiary company grants loans mainly to civil servants; and to date it has also operated successfully.

---

[95] See the Uganda-American Insurance Company, *1976 Annual Report*.

[96] See Decree 19 of 1978, *The Insurance Decree, 1978*.

[97] Ibid., sec. 3 and sec. 4.

[98] See Act 22 of 1964, *The National Insurance Corporation Act, 1964*, and Act 8 of 1968, *The National Insurance Corporation (Amendment) Act, 1968*.

[99] The National Insurance Corporation (Uganda), *Eighth Report and Accounts, 1972* (Kampala: LDC Press, 1973), pp. 4-5.

TABLE 3-7

ACTIVITIES OF THE NATIONAL INSURANCE CORPORATION (UGANDA), 1965-1973

(Shs million)

Year	LIFE ASSURANCE		CASUALTY INSURANCE[1]		Total Premium Income	General Reserve Fund[2]	TOTAL ASSETS
	Premium Income	Reserve Fund	Premium Income	Reserve Fund			
1965	0.0	0.0	0.9	0.9	0.9	0.9	2.7
1966	0.1	0.3	0.7	1.3	0.8	1.6	2.7
1967	1.2	1.3	1.2	1.4	2.4	2.7	5.8
1968	4.0	4.7	3.2	4.7	7.2	9.4	13.6
1969	4.7	8.2	5.4	2.7	10.1	10.9	22.1
1970	7.9	12.4	13.8	5.5	21.7	17.9	39.4
1971	14.6	23.5	37.4	15.0	52.0	38.5	70.8
1972	16.7	35.8	45.7	18.3	62.4	54.1	103.8
1973	31.9	71.2	47.3	75.9	79.2	147.1	145.7

SOURCE: National Insurance Corporation (Uganda), *Report and Accounts*, 1966, 1968, 1970, 1972, and 1973 issues.

[1] Casualty insurance comprises fire, motor vehicle, accident, and marine, aviation, and transit insurance.

[2] Each kind of insurance has its own Reserve Fund which consists of the net profits and funds received from the insurance. The General Reserve Fund is the sum of these Funds.

Unfortunately, reinsurance business is undertaken by neither the National Insurance Corporation nor the other three active insurance companies. Hence, funds have to "leak" from the country for the purpose of reinsurance.

Finally, there are numerous other credit institutions in the country. These include hire purchase companies, housing and building societies, and co-operative societies.

D. Financial Markets in Uganda

Economists broadly partition financial markets into money and capital markets.

The Money Market

The money market is the "place or machanism whereby funds are obtained for short periods of time (from one day to one year), and financial assets representing short-term claims are exchanged."[100] The money market, like the capital market, is usually subdivided into primary and secondary markets. The former deals in new issues and the latter deals in outstanding short-term claims.

Risks of capital loss (*money* risk) and default (*credit* risk) are minimized by the money market because the instruments handled are short-term and are mostly liabilities of the banking system and the government. The market is important because it ensures liquidity and enables the central bank to implement open market operations in its regulation of the economy.

---

[100] Charles E. Henning, W. Pigott, and R. Scott, *Financial Markets and the Economy*, 2nd ed. (Englewood Cliffs, New Jersey: Prentice-Hall, 1978), p. 241.

Borrowers in the market include the Treasury, financial intermediaries, business firms, and individuals; and the lenders include the central bank, financial intermediaries, the government, and other business firms. Instruments bought and sold in the Ugandan money market include treasury bills, commercial bills and promissory notes eligible for discount by the Bank of Uganda, and all types of short-term loans granted by the banking system, non-bank financial intermediaries, business firms, and individuals.

As pointed out in Chapter II, the Ugandan economy is dual. This dualism and the general underdevelopment of the country have led to the dichotomization of the money market into an organized and an unorganized section. What we have so far said about the money market in the country specifically applies to the organized section.

The unorganized money market basically consists of rural traders, landlords, shopkeepers, and various moneylenders. These operators are located in the coutryside where business is too small and risky to attract institutional operators like banks. They supply all or part of the financial requirements of the rural community in a manner different from that of the institutional financial intermediaries. These "rural bankers" usually combine both lending and deposit operations; and most of their transactions are in the form of cash, rather than cheques. The market is also quite heterogeneous as there are no uniform accounting or lending procedures or policies. However, all "bankers" require some kind of collateral security. Acceptable collateral includes land and durable consumer goods. Rates of interest the "bankers" charge are usually very high. Factors determining these rates include riskiness, credit-worthiness, the purpose of the loans, the magnitude and terms of the loans, and personal and other socio-economic relationships.

The unorganized money market carries out a lot of remedial lending. However, it may also merely divert the savings of one group to financing the consumer expenditures of another. Moreover, since the "bankers" are not recognized by law and are virtually independent of the organized money market, the Bank of Uganda's monetary policy actions will affect them only marginally. Yet their existence is important and may have something to do with both hoarding and the high ratio of currency to money supply (which is about 40 per cent).

The Capital Market

The capital market deals with financial instruments whose maturity period exceeds one year. These instruments include government bonds, corporate shares, and long-term loans. The suppliers of these instruments in Uganda include the Bank of Uganda, the Uganda Development Corporation, and financial intermediaries. The main buyers of the instruments include the government, parastatal bodies, business firms, and individuals.

The number of participants in the market is small; and middlemen in the market are totally absent. In view of the general poverty of the population, most of the instruments are held by such institutions as the Bank of Uganda, commercial banks, and insurance companies.[101] The domestic market is so small that some government stocks have to be floated on the London market[102] and the Nairobi Stock Exchange.[103] The government is, however, planning "to encourage the development of a stock exchange, brokerage houses and related facilities,"[104] mainly to provide a secondary capital market to enhance the development of the country.

---

[101] See Bank of Uganda, *Annual Report, 1971-1972*, Table 37, p. 78.
[102] Ibid., Table 38, p. 79.
[103] For an analysis of the Nairobi Stock Exchange which acted as an East African stock market until the recent changes leading to the demise of the East African Community in 1977, see Edward A. Arowolo, "The Development of Capital Markets in Africa with Particular Reference to Kenya and Nigeria," *IMF Staff Papers* 15 (July 1971): 213-23.
[104] Uganda Government, *Plan III*, par. 13.52, p. 257.

CHAPTER IV

THE SAVING-INVESTMENT PROCESS, FINANCIAL INTERMEDIATION, AND FINANCIAL DEVELOPMENT IN UGANDA

This chapter is subdivided into three sections; dealing with the place of financial intermediation in the saving-investment process, the institutional framework for financing development in Uganda, and the measurement of the financial infrastructure and financial development in the country.

The section dealing with the role of financial intermediaries in the saving-investment process will include a brief analysis of the relationship between national income accounts and the saving-investment process, as well as a discussion of the basic functions of financial intermediaries in a developing country.

The description of the institutional framework for financing development will focus mainly on the extent to which financial intermediaries in Uganda are specialized insofar as their financing of different sectors of the economy (the government, the rural sector, industry, housing, and commerce) is concerned.

In the section devoted to the assessment of the financial superstructure and financial development in Uganda, financial instruments and measures will be defined and discussed. The measures will then be estimated and used in assessing financial development in the country. They will also be employed as proxies for the level or degree of financial intermediation in the country in the econometric analyses of chapter VII.

The main innovation in this chapter lies in the provision of estimates of some of the measures of financial intermediation and development in Uganda. This appears to be one of the few times a fairly comprehensive, statistical analysis of Uganda's financial infrustructure has been undertaken. Moreover, a comparative analysis of the infrastructure is also attempted: estimates of some of the measures are compared with similar estimates for some other countries.

A. The Saving-Investment Process

Saving, Investment, and Financial Intermediation

In all economies, the process of capital formation (that is, saving and investment) plays an important role. This is because many economically desirable objectives--such as price stability, high levels of income, full employment, and high rates of economic growth--are closely bound up with this saving-investment relationship. On the one hand, saving *releases*, or frees, productive resources from the current production of consumer goods; and, on the other hand, investment *utilizes* such freed resources to produce capital goods, goods that add to the productive capacity of the economy.

As pointed out earlier, it is only by coincidence that *ex ante* (planned) saving and investment are equal in a modern economy, although, by definition, the *ex post* (realized) magnitudes will be equal. Saving and investment are brought into equality by fluctuations in national income and relative prices. When planned saving exceeds (falls short of) planned investment, income will fall (rise). Consequently, fluctuations in saving and investment are reflected in fluctuations in income and employment and, possibly, in prices.

Moreover, over a long period of time, the fraction of national income devoted to saving and investment and the efficiency with which saving is allocated among alternative investment opportunities help determine a country's rate and direction of economic growth. In fact, the greater the amount of aggregate saving and investment at each level of national income, the higher will be the future rate of growth, other things being equal. Investment in new plant and equipment will enhance productivity in the economy, while an efficient allocation of saving will tend to raise the economy's rate of economic growth.

How do the activities of lending and borrowing--and, therefore, financial intermediation--enter the picture? As we have seen, in an economy where individual economic units all have *balanced budgets*--implying that each unit's planned and realized saving is *always* equal to its planned and realized investment--the activities of lending and borrowing are irrelevant. However, in a modern economy, there exist both "surplus units" (net savers) and "deficit units" (net borrowers). That is, there exist units with *unbalanced budgets*. Surplus units become ultimate lenders or suppliers of loanable funds, and deficit units become ultimate borrowers or demanders of loanable funds.

When lending and borrowing become possible in an economy, the process of financial intermediation becomes important. This is because financial intermediation is the act of collecting the savings of the ultimate lenders (and, perhaps, other funds) by financial institutions and the rechannelling of these funds to ultimate borrowers for the purpose of financing investment.

The Process

Figure 4-1 provides a diagrammatic presentation of the saving-investment process, and the place of financial intermediation in the process.[105]

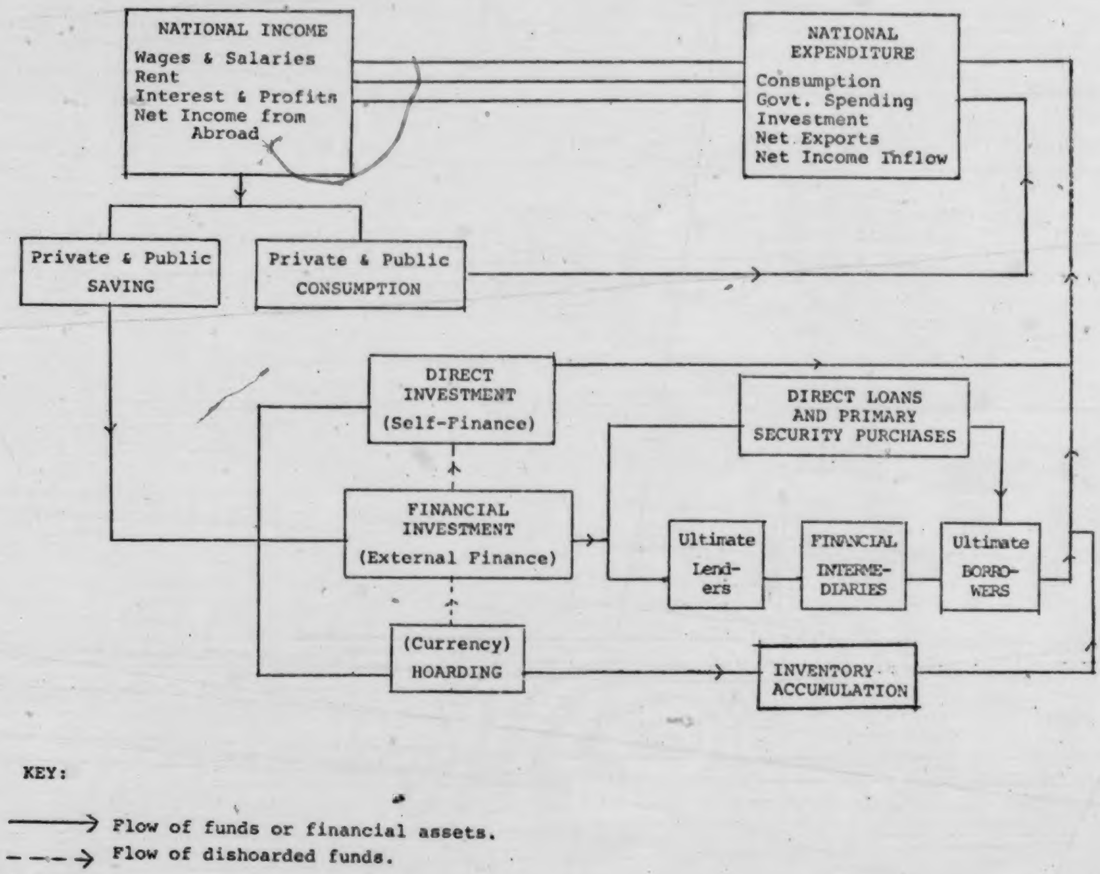
It is well known that national expenditure and national income are equivalent as they are merely alternative ways of measuring the same thing, a country's final product or output. As indicated on the lower left-hand side of Figure 4-1, income may be used for consumption spending or it may be saved. Further, the (private and public) saving may flow

---

[105] This diagram is partly based on the chart presented by John G. Gurley in *Liquidity and Financial Institutions in the Postwar Period*, Study Paper No. 4, U.S. Joint Economic Committee, 86th Congress, 1st Session, January 25, 1960; p. 21.

FIGURE 4-1

THE PLACE OF FINANCIAL INTERMEDIARIES IN THE SAVING-INVESTMENT PROCESS


NATIONAL INCOME
Wages & Salaries
Rent
Interest & Profits
Net Income from Abroad
NATIONAL EXPENDITURE
Consumption
Govt. Spending
Investment
Net Exports
Net Income Inflow
Private & Public SAVING
Private & Public CONSUMPTION
DIRECT INVESTMENT (Self-Finance)
DIRECT LOANS AND PRIMARY SECURITY PURCHASES
FINANCIAL INVESTMENT (External Finance)
Ultimate Lend-ers
FINANCIAL INTERME-DIARIES
Ultimate BORRO-WERS
(Currency) HOARDING
INVENTORY ACCUMULATION
KEY:
Flow of funds or financial assets.
Flow of dishoarded funds.

into any, or all, of three channels. It may be used to finance internal investment--thus giving rise to what is known as *self-finance*. An example of self-finance is the undistributed profits of business firms that are "ploughed back," that is, used by the very firms to finance their investments. The funds may also be used for financial investment, that is, to purchase financial assets such as treasury bills, bonds, life insurance policies, savings deposits, and so forth. Here surplus units are providing *external finance* to deficit units--in the form of direct loans and purchases of primary securities (direct external finance). Lastly, the saving may be hoarded. Hoarding will lead to increased accumulation of inventories in the system.

Furthermore, as the lower, right-hand part of the figure shows, the external finance may flow indirectly to the ultimate borrowers via financial intermediaries (indirect external finance). Here savers buy secondary securities from the intermediaries which, in turn, accept the liabilities of the borrowers.

The Saving-Investment Process in Uganda, 1950-1976

The previous subsection was devoted to a description of the saving-investment process in general. In this subsection, the process of saving and capital accumulation in Uganda is examined.

In this study, (national) saving (S) is defined as the difference between total gross fixed capital formation (a proxy for total gross investment) and total foreign saving.

The current account balance (including unrequited transfers) is used as a proxy for total foreign saving--that is, net foreign capital inflows.

A detailed analysis of the data used in this study, as well as their shortcomings, will be presented in chapter VII below.

Table 4-1 shows, *inter alia*, the saving-income and the investment-income ratios. Both nominal saving and investment have shown an upward trend during the period.[106] Saving grew from Shs 374.0 million to Shs 1,564.5 million during the period--by 47.9 per cent between 1950 and 1960, by 196.8 per cent between 1961 and 1970, and by 318.3 per cent during the entire period. Investment rose from Shs 198.0 million in 1950 to Shs 1,209.0 million in 1976, an increase of 510.6 per cent. However, both saving and investment were characterized by severe fluctuations and stagnated for the first half of the period. The fluctuations in saving and investment were partly due to fluctuations in income (GDP), whose growth rate varied from period to period as the table shows. They were also partly due to variations in the balance on the current account brought about, in turn, by fluctuations in export earnings and transfers.

---

[106] The analysis here is done in terms of nominal variables because the ultimate aim is to compute ratios, whose values would not change even if the variables were expressed in real terms. However, to facilitate comparisons of nominal and real rates (e.g., the nominal and real rates of growth of GDP), the rate of inflation (DP/P) is also tabulated in Table 4-1.

TABLE 4-1

THE SAVING-INCOME AND INVESTMENT-INCOME RATIOS IN UGANDA, 1950-1976

(Percentages)

Year	GDP in Current Prices (Shs m)	Capital Formation (Shs m)	Total National Savings (Shs m)	GDP Growth Rate (%)	S/Y Ratio (%)	I/Y Ratio (%)	Inflation (P/P)
1950	1432.0	198	374.0	--	26.1	13.8	0.0
51	1928.0	238	672.0	34.6	34.9	12.3	4.2
52	2154.0	360	754.0	11.7	35.0	16.7	4.6
53	1884.0	410	520.0	-12.5	27.6	21.8	3.3
54	2208.0	376	594.0	17.2	26.9	17.0	10.6
1955	2803.6	442	480.0	27.0	17.1	15.8	5.7
56	2831.6	478	566.0	1.0	20.0	16.9	5.0
57	2934.4	386	544.0	3.6	18.5	13.2	2.2
58	2936.0	392	582.0	0.1	19.8	13.4	2.1
59	2979.4	358	496.0	1.5	16.6	12.0	0.8
1960	3042.5	372	553.0	2.1	18.2	12.2	-5.7
61	3128.3	360	440.0	2.8	14.1	11.5	15.7
62	3133.3	354	383.0	0.2	12.2	11.3	-13.5
63	3516.9	400	560.0	12.2	15.9	11.4	3.0
64	3902.1	484	744.0	11.0	19.1	12.4	10.1
1965	4456.1	824	790.0	14.2	17.7	18.5	12.3
66	5978.3	852	743.5	34.2	12.4	14.3	-0.7
67	6621.5	1013	940.8	10.8	14.2	15.3	3.1
68	6626.0	1080	1058.0	0.1	16.0	16.3	-3.6
69	7479.0	1188	1145.0	12.9	15.3	15.9	11.7
1970	8528.0	1161	1306.1	14.0	15.3	13.6	9.8
71	9316.0	1484	871.9	9.3	9.4	15.9	15.7
72	10367.0	1315	1431.3	11.3	13.8	12.7	-3.1
73	13953.0	1001	1304.4	24.9	10.1	7.7	24.5
74	16025.0	1571	1398.9	23.7	8.7	9.8	66.9
1975	19028.0	1541	1128.3	18.7	5.9	8.1	20.3
76	24387.0	1209	1564.5	28.2	6.4	5.0	54.8

SOURCES: See Table A1-1 of Appendix A1.

The savings ratio rose from 26.1 per cent to 27.6 per cent between 1950 and 1953. Thereafter, it followed a downward trend, falling to only 6.4 per cent in 1976. The investment ratio, after rising from its 1950 level of 13.8 per cent to 28.8 per cent in 1953, also generally declined over the period. It was only 5.0 per cent in 1976. The ratios were also characterized by fluctuations.

The decline in the ratios was caused mainly by political uncertainty. Two periods of political uncertainty may be cited: 1954-1962 and 1969-1976. The first period was characterized initially by massive strikes and dissent that led to the exile of a local King by the colonial regime, and, later, by the advent of political independence that led to capital flights from East Africa as a whole. The second period was characterized by the uncertainty resulting from the government's announced shift to a socialist ideology (1969-1970), and by the political instability of the Amin regime (1971-1979). Note that the ratios declined substantially during both periods.

Table 4-2 shows some of the forms savings take in Uganda. They include savings and time deposits at commercial banks, the Post Office Savings Bank, and other depost-banks, government savings, and insurance policies, most of which carry annuity clauses. In this study, government saving is defined as the difference between current government expenditures (exclusive of expenditures on capital formation) and government income. Private Saving is

TABLE 4-2

SOME FORMS SAVINGS TAKE IN UGANDA, 1950-1976

(Shs million)

Year	Private Savings (S_{pr})	Government Savings (GS)	Total National Savings (S)	Savings and Time Deposits (TD)	Post Office Savings Bank Balance (POSB)	Life Insurance Premiums
1950	259.3	114.7	374.0	17.1	31.6	5.4
51	534.4	137.5	672.0	80.2	36.4	6.2
52	617.2	136.8	754.0	26.0	40.8	7.9
53	393.9	126.1	520.0	75.0	44.7	9.2
54	491.7	102.3	594.0	39.8	47.1	10.3
1955	407.9	72.1	480.0	45.7	50.5	13.4
56	450.4	115.6	566.0	67.3	48.2	13.8
57	481.6	62.4	544.0	81.3	45.4	15.1
58	485.6	96.4	582.0	98.6	42.6	24.6
59	449.2	46.8	496.0	101.4	41.5	29.1
1960	545.1	7.9	553.0	87.4	33.0	32.3
61	463.3	-23.3	440.0	105.4	29.9	27.2
62	363.7	19.3	383.0	122.7	27.2	30.2
63	486.6	73.4	560.0	162.6	25.2	26.3
64	695.8	48.2	744.0	189.4	24.4	30.6
1965	864.0	-74.0	790.0	252.0	23.9	33.8
66	868.1	57.4	743.5	336.1	24.2	35.1
67	872.5	68.3	940.8	364.7	23.1	42.6
68	1048.9	9.1	1058.0	399.8	22.8	4.0*
69	1281.4	-136.4	1145.0	427.0	23.0	4.7
1970	1467.2	-161.1	1306.1	544.3	23.3	7.9
71	1464.1	-592.2	871.9	511.7	23.6	14.6
72	2030.9	-599.6	1431.3	553.6	24.1	16.7
73	1912.9	-608.5	1304.4	797.0	25.0	31.9
74	2098.9	-700.0	1398.9	859.0	26.0	n.a.
1975	2100.9	-972.6	1129.3	1426.0	27.0	n.a.
76	2765.6	-1201.1	1564.5	1742.0	28.0	n.a.

n.a. = not available.

SOURCES: See Table A1-1 of Appendix A1.

then the difference between national saving and government saving.

As Table 4-2 shows, all forms of saving, have shown an upward trend since the 1950s, although balances at the Post Office Savings bank have fluctuated over time.

In the subsistence sector, savings usually take two forms: currency and stocks of consumer goods (mainly foodstuffs, stored in granaries).

Functions of Financial Intermediaries

This subsection complements the previous ones by providing a brief outline of the major ways in which efficient financial intermediation helps the development process.

If a country is endowed with inadequate financial intermediation, its farmers and other rural dwellers do not have much opportunity to choose among different types of finance; their portfolio selection is seriously limited. To guard against inflation, or merely to be certain of obtaining consumer goods when need arises, they accumulate physical assets (inventory investment): stocks of consumer goods or jewellery. The stocking of commodities can be very wasteful, especially where adequate storage facilities are not available. In Uganda, for example, harvested crops stored in grass-thatched granaries are subject to risks of being eaten away by rodents, being accidentally burnt up, deteriorating in quality over time, and rotting away because of leaking granaries.

The introduction and development of an efficient system of financial intermediation and financial markets enable the peasant farmer and other rural dwellers to earn interest on their savings. In addition, their risks are reduced, and above all, their choices among different portfolios are broadened. Moreover, the system is essential for the collection of the savings of the urban wage and salary earners. All in all, the potential small saver will be induced to increase his or her saving, since the rate of return on financial claims is usually greater than that on physical assets, and risks associated with the former in a developing country like Uganda are less than those associated with the latter. The investor, *mutatis mutandis*, also gains from efficient financial intermediation. Consequently, as Polakoff observes, "in this manner, intermediaries increase . . . the marginal utility of surplus units while, at the same time, lowering the marginal disutility of deficit units."[107]

As observed earlier, a well-functioning intermediation system improves not only the mobilization of savings, but also the allocation of the savings amongst competing uses. Moreover, the pooling of risks and funds enables business firms to undertake very costly but beneficial investments, investments that they would have been unable to finance from their internal saving and/or from direct external finance. As Hempel and Yawitz point out, the resultant specialization of labour and increased efficiency due to, say, economies of scale help to reduce the risk of default and enable the financial institutions to act in a cost-reducing manner.[108] Deficit units pay less for their borrowings than they would in the absence of financial intermediation.[109]

---

[107] Murray E. Polakoff *et al., Financial Institutions and Markets* (Boston: Houghton Mifflin Co., 1970), p. 16.

Besides, in the presence of financial intermediaries, new income is generated as more productive investments are now undertaken. The people who previously received no tangible return on their savings when they were held in the form of physical assets can now obtain interest and dividends on their financial investments. It is also worth noting that a large part of government expenditure incurred in the provision of social services--including the "welfare state"--is financed through government borrowing on financial markets. That the entire society benefits from social services is beyond doubt.

Lastly, the financial policies of the central bank (such as monetary policy) are implemented through financial institutions and markets. Financial institutions, have an important role to play in the transmission of financial policies to the real sector.[110]

---

[108] See George H. Hempel and Jess B. Yawitz, *Financial Management of Financial Institutions* (Englewood Cliffs, New Jersey: Prentice-Hall, 1977), p. 8.

[109] This point is emphasized by Binhammer as one of the major functions of financial institutions. See Binhammer, *The Development of a Financial Infrastructure in Tanzania*, p. 147.

[110] For a theoretical analysis of the role of financial intermediaries in the policy transmission mechanism, see Karl Brunner and Allan H. Meltzer, "The Place of Financial Intermediaries in the Transmission of Monetary Policy,"

B. The Ugandan Institutional Framework for Financing Development

Financing the Government Sector

Apart from borrowing, there are four major sources of revenue for the government. These are taxation, incomes from public corporations, transfers (such as court fines and grants), and financial transactions of the government.[111] Taxation is the main source, accounting for over 70 per cent of total revenue.

The revenue is used to finance government consumption, transfers (such as interest on the national debt, pensions, and grants-in-aid), and capital formation. The financing of capital formation, as well as the growth and composition of the national debt, reflect the volume of saving generated by the government. The taxes and levies paid by the private sector out of its current income are a form of forced savings, if such funds would otherwise have been spent on consumer goods. Except for the "Please Effect," it is generally believed that tax revenue and government saving are directly related.[112]

---

[110] (cont'd) *American Economic Review* 53 (May 1963): 373-82.

[111] Financial transactions include commercial transactions, repayments of government loans, sales of government financial assets, and accumulated depreciation.

[112] The "Please Effect" is a hypothesis which claims that (government) savings vary inversely with tax revenue. More will be said about this hypothesis at a later stage.

It is worth noting that the government has been stepping up its efforts aimed directly at encouraging and mobilizing saving. The Premium Development Bond and the National Lottery schemes are cases in point. Premium development bonds (first issued in 1964) were designed as a saving instrument to appeal to a wide cross-section of the population. Unlike treasury bills, these bonds are issued in small denominations, and each bond holder automaticaly participates in prize draws. The National Lottery was designed to capture funds that were then flowing out of the country to purchase foreign lottery tickets. The National Lottery tickets, at one shilling each, are also cheap enough for the common man to afford.

Financing the Rural Sector

In rural areas, the need for credit falls into five major categories: consumer credit, cultivation finance, crop (marketing) finance, development finance, and commercial finance.[113]

Consumer credit enables the rural dweller to purchase shelter, food, and clothing for his family that he would not otherwise be able to provide for. The money market, especially the unorganized money market, is the main source of this type of credit.

Cultivation credit enables the peasant farmer to acquire seeds, fertilizers, insecticides, and other farm inputs during the crop season. In Uganda, most of the cultivation, or production, credit available to farmers is provided through the Co-operative Movement. The Co-operative Bank operates a lending scheme for farmers. Co-operative societies intermediate between farmers and marketing boards. Primary co-operative societies collect, store, and transport their members' crops to the Co-operative Unions which process the crops and then sell them to the marketing boards. All the unions belong to the Uganda Co-operative Central Union, which purchases agricultural appliances, equipment for the Unions' processing factories, fertilizers, seed, and other farm inputs.[114]

---

[113] See Binhammer, *The Development of a Financial Infrastructure in Tanzania*, p. 58.

Marketing credit, as the name suggests, enables the farmer to market the crops. It is provided by both the banks and the government through the Co-operative Movement. Loans are specifically granted to cover costs of purchase of unprocessed crops from farmers by the unions and to enable marketing boards to buy processed crops from the unions and to market the crops.

Development finance is for the introduction and extension of farming and processing operations. Unlike the other types of credit, development finance takes the form of long-term loans. It is supplied mainly by the development-finance parastatal bodies and international agencies, such as the Commonwealth Development Corporation and the International Development Agency (IDA).

---

[114] For details concerning the structure and organization of the co-operatives in Uganda, refer to the report by Shafiq Arain (chairman), *The Report of the Committee of Inquiry into the Affairs of all Co-operative Unions in Uganda* (Kampala: Government Printer, 1967). Also see Thomas Oursin, "Development and Structure of Industry in Uganda," in Paul Zajadacz, ed., *Studies in Production and Trade in East Africa* (Munich: Weltforum Verlag, 1970), p. 372.

Finally, commercial finance enables the producer to process crops and to provide transport and related services, such as insurance. It is of a short-term nature; and is provided mainly by the banks.

Despite all these sources of credit for the rural sector, the sector still lacks funds. The rural sector is still not modernized. This fact argues for increased financial intermediation in the sector.

Financing Industrial Development

Industrial development in Uganda is promoted by the government, the private sector, and foreign companies and organizations. As we have seen, government effort in this area is exercised mainly by the Uganda Development Corporation (UDC). In addition, the Industrial Charter--which includes the Foreign Investment (Protection) Act--promotes foreign investment in industrial projects in Uganda.[115]

Although the UDC and foreign capital are the major sources of finance in the country, institutions such as the banking system also provide sizeable capital to industry. However, unlike the UDC, the banks concentrate on the provision of short-term credit.

---

[115] The Industrial Charter, established in 1964, lays down the basic principles of government policy *vis-a-vis* new investments in industry. The Charter, *inter alia*, confirms Article 22 of Uganda's Constitution, which provides protection against nationalization and sequestration.

Housing and Other Finance

In Uganda, there are five sources of housing finance: the Housing Finance Company of Uganda (HFCU); the National Housing and Construction Corporation (NHCC), the Local Authority Loan Fund (LALF); financial intermediaries (mainly commercial banks and insurance companies); and, individuals. The first three are under government supervision, and are mainly concerned with long-term finance.

The HFCU is a subsidiary of the Uganda Development Bank; and the LALF is directly under the Ministry of Works and Housing. The LALF scheme is a source of funds intended solely for the improvement and development of slums in urban areas. Its ultimate objective over time is to do away with the slums. The HFCU provides all types of housing finance.

The NHCU (known as the National Housing Corporation, NHC, before 1974) was established and authorized to put up housing estates, especially in urban areas, intended for renting to government and other employees. It constructs three kinds of housing units: for the high-income, the middle-income, and the low-income groups. The corporation may also sell some of its houses or housing estates to the government or the public; and it may put up estates in conjunction with any public or private organization.

The banks as well as individuals provide mostly short-term loans, while insurance companies provide long-term loans to the housing sector.

Lastly, finance for other sectors of the economy (such as commerce) mainly comes from the banking system, and is of a short-term nature. In addition, the role of the unorganized money market in this area should not be overlooked.

C. Measuring Financial Intermediation

Financial Assets or Instruments

Before presenting suggested measures of the financial superstructure of an economy, one needs to examine the financial assets to be employed in the definitions. This subsection aims to point out what instruments will be excluded in defining the measures.

It has been proposed that financial assets held by the central government should be excluded from the list of financial assets to be used in defining our measures. This is because (as Tun Wai argues) the volume of the financial assets of the central government--exclusive of those held by government institutions and enterprises--can be altered with little or no difficulty.[116] For example, the government can always borrow from the central bank with minimal difficulties. Consequently, the only meaningful financial asset for an economy is that held by the non-financial sector other than the central government.

---

[116] See U Tun Wai, *Financial Intermediaries and National Savings in Developing Countries* (New York: Praeger Publishers, 1972), p. 50.

Further, one would hypothetically define the volume of financial assets as all claims denominated in money; and, hence, would include instruments like currency, insurance policies, demand and time deposits, trade credits, new issues of stocks and shares, unorganized money market instruments, and so forth. However, in our empirical definitions, we shall exclude instruments such as the unorganized money market instruments, trade credits, and new issues of stocks and shares--to mention only a few. These will be excluded because such instruments are not handled by the organized market in Uganda to any large extent.

To be specific, define the financial assets held by the non-financial private sector as:

F_1 = Currency in circulation;

F_2 = Demand deposits with banks;

F_3 = Savings and time deposits (quasi-money) with banks;

F_4 = Quasi-money with the Post Office Savings Bank and other near-banks;

F_5 = Bonds, certificates, and bills issued by bank and non-bank financial institutions;

F_6 = capital accounts, accounting reserves, and shares of bank and non-bank institutions;

F_7 = Total life assurance assets or liabilities;

F_8 = Primary securities held by the private sector; and

F_9 = Government debt held by the non-financial private sector.

Now, let F = the total volume of financial assets held by the non-financial private sector. Then

$$(4.1) \qquad F = F_1 + F_2 + \ldots + F_q$$

Alternative measures of a country's financial structure--that is, determinants of the presence, nature, and relative size of different financial instruments and institutions in the economy--can now be outlined.

The Measures

Goldsmith proposes eight types of measures of a country's financial superstructure.[117] In this subsection, an outline of the measures is presented.

The first measure is concerned with the relationship between a country's financial superstructure and its real infrastructure. Hence, it assesses the relative importance of the financial system as a whole. Specifically, this measure, the financial interrelations ratio (FIR), is defined as the total value of all financial assets divided by the total value of tangible assets (national wealth) at a point in time. In our case, it is the ratio of F to national wealth.

Let DF denote the change in F and Y denote national income. Then we can define a ratio related to the FIR. This is Tun Wai's financial savings ratio (FSR), whose

---

[117] See Raymond W. Goldsmith, *Financial Structure and Development* (New Haven: Yale University Press, 1969), pp. 26-48. Also see Raymond W. Goldsmith, "Some Reflections on the Past, Present, and Future of Financial Institutions," in P. Frantzen, ed., *Current Problems of Financial Intermediaries* (Rotterdam: Rotterdam University Press, 1975), pp. 77-90.

denominator is the Y and whose numerator is the DF.[118] Note that whereas FIR is a stock measure, FSR is a measure based on flows.

The second measure focuses on the numerator of the FIR (or FSR). Various ratios based on the distribution of the financial instruments among their main types, or the relative distribution of the financial assets of the major sectors of an economy, can be computed. An example of ratios that fall under this measure is the currency ratio, F_1/F.

The third kind of measure emphasizes the distribution of the total financial wealth among economic sectors. A ratio of the total financial assets held by the public (the household sector) to the value of all financial assets in the economy falls in this category.

The fourth measure aims at assessing the relative importance of various financial intermediaries. A ratio in this category is, for example, that which assesses the relative magnitude of the banking system. This ratio would be computed by dividing the value of the total financial assets held by the banking system by the value of total financial assets in the economy.

The fifth measure focuses on the institutionalization of a country's financial structure, that is, the part played by financial intermediaries in the country. The measure, or ratio, is generally known as the Financial Intermediation

---

[118] See U Tun Wai, *Financial Intermediaries and National Saving in Developing Countries*, p. 53.

Ratio (FIIR); and is obtained by dividing the total value of the financial instruments issued by all financial institutions by the value of the financial assets in the economy.

The sixth type of measure may be called the Financial Interrelations Matrix (FIM). This is a matrix showing the breakdown of the outstanding stock of financial assets by type of instruments and by sector. Thus, it is a cross-classification of instruments and sectors just as the input-output matrix is a cross-classification of inputs and outputs of industries or sectors of an economy.

The seventh measure is the New issues Ratio (NIR), obtained by dividing the total value of new issues of financial assets by national income. Minor adjustments in the numerator of Tun Wai's FSR will produce the NIR, for the two are identical if DF equals the value of the new issues.

The last type of measure is the "Sources and Uses of Funds" statement. From this statement, we can determine, say, the magnitude of internal financing (saving), or external financing (borrowing or issuance of equity securities) for the various sectors of the economy. Besides, we can derive from the statement the flow counterpart of the FIM. This flow counterpart is called the Financial Transactions Matrix (FTM).

Note that, except for the FSR, the first six measures are stock measures while the last two are flow measures. This is not a particularly important distinction since all the stock measures can be easily converted into flow measures because flows are merely the changes in stocks.

Desirable Properties for the Measures

Goldsmith lays down five desirable characteristics which any measure of financial structure should possess.[119] The measure should be quantifiable. It should also be quite "robust," that is, it should behave with reasonable regularity, rather than exhibit erratic swings over time. Besides, it should be economically relevant to the units to which it applies, and to the economy at large. However, whether or not it is "economically relevant" is, to a great extent, a subjective matter. Further, it should be ". . . flexible enough to be useful in exploring a variety of hypotheses regarding financial behavior."[120] And the measure should be universal enough to be used in comparisons over time and amongst countries.

Financial Development in Uganda, 1950-1976

In the previous subsections, various alternative measures of a country's financial structure were presented. In this subsection, the values of some of the measures in Uganda will be derived and discussed. The estimates will be used in assessing financial development in the country. Some of the estimates (such as the currency ratio and the financial intermediation ratio values) will also be used in Chapter VII as proxies for financial intermediation or development in Uganda.

---

[119] Goldsmith, *Financial Structure and Development*, p. 52.
[120] Ibid., p.52.

The financial data (that is, data on the financial instruments or assets, F_1 through F_9, defined above) used in the study cover the banking system, insurance companies, savings banks, a development corporation (UDC), a development bank (UDB), treasury bill and government stock issues, and two commodity assistance funds--reflecting (forced) insurance against export price and income fluctuations. The data cover the period 1950-1976.

Data on the Co-operative Movement (co-operative societies), hire-purchase companies (except the M/S Uganda Hire Purchase Company, a subsidiary of the National Insurance Corporation), the unorganized money market, building societies, and credit unions are completely inaccessible. Since these institutions (except the unorganized money market) are small in magnitude, their omission is not likely to jeopardize the analysis.

Table 4-3 presents some of the measures discussed in the previous subsections. The financial interrelations ratio (FIR) is the ratio of F to gross domestic product or national wealth. Here the denominator of the FIR is GDP because of lack of data on national wealth. The financial intermediation ratio (FIIR) is the ratio of the total financial assets issued by all financial intermediaries to F.[121]

---

[121] If TFI denotes total instruments held by all financial intermediaries, then FIIR = TFI/F. Sometimes the FIIR is defined as TFI/(F - TFI). See Goldsmith, "Some Reflections

TABLE 4-3

SOME RATES AND RATIOS DEPICTING UGANDA'S FINANCIAL INFRASTRUCTURE AND GROWTH, 1950-1976

(Percentages)

Year	Growth Rate of the Total Financial Assets (F)	Financial Inter-relations Ratio (FIR)	Financial Inter-mediation Ratio (FIIR)	Bank Ratio $(\frac{B}{F})$	New Issues or Financial Savings Record (NIR/FSR)	Currency Ratio $(\frac{CC}{M_1})$	Monetization Ratio (MR)
1950	--	59.8	69.4	61.8	--	35.4	67.4
51	69.7	75.4	58.0	53.0	31.0	45.3	73.7
52	19.4	80.6	59.6	51.4	13.1	35.4	70.9
53	-2.9	89.5	58.3	49.3	-2.7	42.6	70.8
54	6.8	81.5	58.9	49.8	5.2	41.0	71.1
1955	-2.2	62.8	65.1	54.8	-1.4	47.2	72.4
56	-0.3	62.0	66.2	55.3	-0.2	51.2	72.7
57	1.1	60.5	65.0	53.4	0.7	55.5	73.1
58	0.8	60.9	66.3	53.7	0.5	51.6	72.7
59	-3.3	58.0	67.7	53.9	-2.0	51.7	73.2
1960	3.4	58.8	67.1	52.8	1.9	59.6	72.8
61	-2.4	55.8	67.0	52.0	-1.4	55.7	74.1
62	-2.4	54.3	69.4	53.6	-1.4	53.2	71.1
63	49.0	72.1	54.6	60.7	23.7	53.6	73.3
64	-15.6	54.8	76.3	60.8	-10.2	43.0	73.9
1965	17.1	56.2	77.5	64.1	8.2	33.6	74.5
66	1.0	42.3	79.4	67.9	0.4	49.9	80.0
67	1.3	38.7	79.5	66.2	0.5	48.6	80.0
68	4.7	40.5	80.6	64.9	1.8	51.1	79.9
69	24.1	44.5	76.1	60.7	8.6	54.2	69.7
1970	24.0	48.4	78.0	62.3	9.4	53.9	70.0
71	20.7	53.5	74.6	58.0	9.2	52.8	70.0
72	35.9	65.3	73.3	57.5	17.3	40.9	69.0
73	33.4	69.7	76.2	59.8	17.5	38.0	67.6
74	20.6	68.0	80.3	62.1	11.6	34.3	66.4
1975	19.1	68.4	83.3	66.2	11.1	40.1	64.8
76	22.3	65.2	83.2	66.4	11.9	36.2	63.9

SOURCES: See Table A1-1 of Appendix A1.

This ratio assesses the role of financial intermediaries in the economy as compared to other issuers of financial instruments, while the FIR is concerned with the overall importance of intermediation. The bank ratio is the ratio of total instruments held by the banking system (B) to F, and the currency ratio relates the currency in circulation (CC) to money supply (M_1). The bank ratio measures the relative magnitude of the banking system among financial intermediaries, while the currency ratio measures the importance of currency vis-a-vis demand deposits. The currency ratio, therefore, "is an *inverse* indicator of the level of financial development,"[122] as it "represents the extent of distrust or the lack of availability of financial institutions."[123]

Lastly, the financial savings ratio (FSR), which in this case is equivalent to the new issues ratio (NIR), is determined by dividing changes in F (DF) by GDP; and the monetization ratio (MR) is the ratio of monetary GDP to total GDP. Here we assume that the DF is equivalent to the new issues of the instruments although usually the two may not be equal. F may change because of retiring or writing off, assets even if there are no new issues of financial instruments. However, the FSR and the NIR were assumed to

---

[121] (cont'd)on the Past, Present, and Future of Financial Institutions," p. 82.

[122] James W. Christian and Emillo Pagoulatos, "Foreign Capital, Domestic Finance and Saving in Developing Countries," *Economia Internazionale* 29 (May/June 1976): 82.

[123] James W. Christian and Emillo Pagoulatos, "Domestic Financial Markets in Developing Countries: An Econometric Analysis," *Kyklos* 26 (1973): 79.

be equal *a la* Goldsmith.[124]

An examination of the FIR in Table 4-3 reveals that the ratio rose from its 1950 level of 59.8 per cent to 89.5 per cent in 1953, after which it declined (except in 1958 and 1960), reaching a level of 54.3 per cent in 1962. After some fluctuations between 1962 and 1968, it rose to a high of 69.7 per cent, before declining to 65.2 per cent in 1976. Over the entire period, it averaged about 61 per cent. Thus the assets of financial institutions are about 60 per cent of GDP in Uganda. This compares favourably with FIRs in other developing countries. For example, in India, the FIR was 55 per cent in 1962, 53 per cent in 1967, and 60 per cent in 1972.[125]

In developing countries, financial interrelations ratios are much higher--about two and a half times larger.[126] The main explanation for the low values of the FIR in developing countries is that in these countries the new issues ratios are very low. For instance, in Uganda, the NIR averaged about 4 per cent during the 1950-1968 period, and about 6 per cent over the entire period. Moreover, as Table 4-3 shows, the ratio fluctuated considerably during the period and was negative in seven instances.

---

[124] See Goldsmith, "Some Reflections on the Past, Present, and Future of Financial Institutions," p. 80.
[125] Ibid., Table 1, p. 89. The corresponding yearly FIR values for Uganda are 54.3 per cent, 38.7 per cent, and 65.3 per cent, respectively, as Table 4-3 shows.
[126] Ibid., p. 78, and Table 1, p. 89.

In India, the NIR/FSR was 3.5 per cent between 1949 and 1963, and 5.6 per cent during the period 1964-1967. The ratio is usually over 10 per cent in developed countries.[127]

As in other countries, in Uganda, the banking system is the largest component of the financial sector. As indicated by the bank ratio, the banking system accounts for 50-60 per cent of the assets of all financial institutions. The bank ratio has been growing over time--from 61.8 per cent in 1950 to 66.4 per cent in 1976. In developing countries, this ratio is usually around 67 per cent, and in developed countries about 40 per cent.[128]

Finally, an examination of the financial intermediation and the currency ratios reveals that the former has been growing over time while the latter has, generally, been declining. Both trends indicate the growing importance of financial intermediaries in Uganda. These are healthy trends given our main hypothesis that financial intermediation fosters growth.

All in all, the analysis of the ratios clearly indicates that the financial superstructure in Uganda has been growing over time. This was true especially after independence as the growth rate of the total financial assets shows (Table 4-3). This is also shown by the monetization ratio (MR)--the ratio of monetary to total GDP--which, except after 1968, has had an upward trend.

---

[127] Ibid., Table 2, p. 89.
[128] Ibid., p. 79.

CHAPTER V

FINANCIAL INTERMEDIATION AND THE SAVING-INVESTMENT PROCESS IN UGANDA: THEORETICAL ANALYSES OF SINGLE EQUATION MODELS

This chapter is devoted to a theoretical analysis of single equation models. Specifically, two basic objectives are attained in this chapter. First, a brief review of some of the existing literature and evidence on single equation models is undertaken. Second, single equation models to be employed in the econometric analyses of Chapter VII are formulated and discussed.

The chapter consists of four sections. The first two sections deal with a review of the literature and evidence on determinants of saving and investment. As will become evident, most of the past research in this field has been done in terms of single equation models, formulated on the basis of Keynesian and post-Keynesian theories. The last two sections tackle the problem of assessing the role of financial intermediaries in the resource-drainage mechanism ("leakages") and in the monetization of the subsistence sector.

The main innovation in this chapter lies in the explicit introduction of the level of financial intermediation as an additional argument in the saving and investment functions and in the development of a model to explain the role of financial intermediation in capital formation. The financial intermediation-capital formation model builds on the work of Christian and Pagoulatos.[129]

A. Theoretical Determinants of Saving

Many alternative saving hypotheses (derived mainly from literature relating to developed countries) have been advanced, especially since World War II. The hypotheses fall into three major groups: pre-Keynesian, Keynesian, and post-Keynesian. Pre-Keynesian theories stress interest (the rate of return on saving) as the main determinant of saving; Keynesian theories stress income (or disposable income); and post-Keynesian theories emphasize some sort of wealth. The Keynesian theory of saving (or consumption) is generally known as the *Absolute Income Hypothesis.*[130] Duesenberry's *Relative Income Hypothesis*,[131] the Ando-Modigliani-Brumberg *Life Cycle Hypothesis*,[132] and Friedman's *Permanent Income Hypothesis*[133] are all post-Keynesian theories that arose as a result of empirical inconsistencies in the Keynesian hypothesis. Unlike the Keynesian hypothesis or theory, the post-Keynesian theories of saving were all derived from a microeconomic approach (utility maximization combined with portfolio selection).

---

[129] See Christian and Pagoulatos, "Domestic Financial Markets in Developing Countries: An Econometric Analysis," *Kyklos* 26 (Fasc. 1 1973): 75-90.

[130] See, for example, David J. Ott, Attiat F. Ott and Jang H. Yoo, *Macroeconomic Theory* (New York: McGraw-Hill Book Company, 1975), p. 60.

[131] See James Duesenberry, *Income, Saving, and the Theory of Consumer Behaviour* (Cambridge: Harvard University Press, 1949).

[132] The Life-Cycle Hypothesis was developed in several studies by Ando, Modigliani, and Brumberg. See, for instance, Franco Modigliani and R. Brumberg, "Utility Analysis and the Consumption Function: An Interpretation of Cross Section Data," in K. Kunihara, ed., *Post-Keynesian Economics*, (New Brunswick: Rutgers University Press, 1954);

An examination of the theories of saving brings out various variables that determine saving. The most important are income, the rate of interest, foreign capital inflows, wealth, the degree of dependency (that is, the number of dependents--the young, the old, and the unemployed--per income-earner), taxation, social status, and financial intermediation.

Income

Different theories stress different kinds of income (or wealth). The first kind of income is absolute income, that is, current income, Y. Keynes himself explicitly related consumption (and, therefore, saving) to absolute income by means of the psychological propensity to consume.[134]

---

[132] (cont'd)Franco Modigliani and A. Ando, "The Life-Cycle Hypothesis of Saving: Aggregate Implications and Tests," *American Economic Review* 53 (1963): 55-84; and Franco Modigliani, *The Life-Cycle Hypothesis of Saving--Part III*, paper presented at the First Conference of the Econometric Society, Rome, 1965.

[133] See Milton Friedman, *A Theory of the Consumption Function*, A Study by the National Bureau of Economic Research (Princeton: Princeton University Press, 1957).

[134] Keynes listed eight main motives of a subjective nature that lead individuals to save. These are precaution, foresight, calculation, improvement, independence, enterprise, pride, and avarice. He also listed enterprise,

The Keynesian saving function in its linear form is given by the following equation:

(4.1) $S = a + bY$

where S is real saving and Y is real income. By hypothesis, $a < 0$ and is the "dissaving" parameter; and $0 < b < 1$. This b is the marginal propensity to save (MPS). Note that the Y is usually replaced by disposable income.

Various studies have employed equation (4.1) to determine saving in different developing economies. These studies include those by Chenery and Eckstein[135] and by Mikesell and Zinser.[136] Chenery and Eckstein found that for sixteen South American countries, the MPS ranged from 0.0 to 0.3. The Mikesell-Zinser study revealed that the MPS varied

---

[134] (cont'd) liquidity, improvement, and prudence as the four major objectives that motivate governments to save. For details concerning these objectives as well as the psychological law, see John Maynard Keynes, *The General Theory of Employment, Interest, and Money* (London: Macmillan, St. Martin's Press, 1936), Book III, especially pp. 107-12.

[135] See Hollis B. Chenery and P. Eckstein, "Development Alternatives for Latin America," *Journal of Political Economy* 78 (Supplement to July-August 1970): 966-1006.

[136] See Raymond F. Mikesell and James E. Zinser, "The Nature of the Savings Function in Developing Countries: A Survey of the Theoretical and Empirical Literature," *Journal of Economic Literature* 11 (March 1973): 1-26. Empirical references in this section draw a great deal on this excellent survey. Reference to their own work is found on p. 4 of the article.

[137] See Simon Kuznets, "Quantitative Aspects of Economic Growth, V: Capital Formation Proportions: International Comparisons for Recent Years," *Economic Development and Cultural Change* 6 (July 1960): 3-21.

[138] See Luis Landau, "Differences in Saving Ratios Among Latin American Countries," in Hollis B. Chenery, ed., *Studies in Development Planning* (Cambridge: Harvard University Press, 1971).

between 0.033 and 0.3. Kuznets,[137] Landau,[138] and Singh[139] also studied the relationship between income and saving. However, these deflated (4.1) by population, thus getting per capita saving and income. Their results, like those of Chenery and Eckstein and Mikesell and Zinser, revealed that: (1) the MPS lies between zero and one and (2) that the MPS is greater than the APS, the average propensity to save (S/Y)--thus bearing out the Keynesian thesis. Lastly, there have been studies that have replaced the Y and the S in (4.1) by their logarithms; others have used private (or personal) income in running off (4.1).[140] Studies by Johnston and Chiu,[141] Houthakker,[142] Williamson,[143] and Gupta[144] fall in this category.

Further, some studies have employed time series data while others used cross-sectional data. Generally, as Mikesell and Zinser point out,

---

[139] See S.K. Singh, *Development Economics: Theory and Findings* (Lexington, Massachusetts: D.C. Heath, 1972).

[140] For a summary of the major findings of the studies, refer to Mikesell and Zinser, "The Nature of the Savings Function in Developing Countries," pp. 7-9; Also see Donald W. Snyder, "Econometric Studies of Household Saving Behaviour in Developing Countries: A Survey," *Journal of Development Studies* 10 (January 1974): 139-53.

[141] See D.W. Johnston and J. Chiu, "The Savings-Income Relation in Underdeveloped and Developed Countries," *Economic Journal* 78 (June 1968): 321-33.

[142] See H.S. Houthakker, "On Some Determinants of Saving in Developed and Underdeveloped Countries," in E.A.G. Robinson, ed., *Problems in Economic Development* (New York: Macmillan and Co., 1965).

[143] See J.G. Williamson, "Personal Saving in Developing Nations: An Inter-temporal Cross-section from Asia," *Economic Record* 44 (June 1968): 194-210.

[144] See Kanhaya L. Gupta, "On Some Determinants of Rural and Urban Saving Behaviour," *Economic Record* 46 (December 1970): 578-83.

> . . . the results of cross-sectional analysis tend to show a higher marginal propensity to save and a larger divergence between marginal and average propensities than do results derived from time series regressions.[145]

The next type of income is permanent income. According to the permanent income hypothesis, the saving function is of the following nature:

(4.2) $S^* = a + bY^* + cYT$

where Y^* is permanent (or expected) income, YT is transitory income ($YT = Y - Y^*$), and S^* is permanent saving. By hypothesis, $a = 0$, $0 < b < 1$, and $c = 1$.

Time-series studies based on the Permanent Income Hypothesis use a moving average of two to four years in defining the empirical permanent income. Those using cross-sectional data employ some kind of group mean to define permanent income. Studies falling in this category include those by Williamson,[146] Friend and Taubman,[147] and Gupta.[148]The resultant empirical evidence tends to support the hypothesis that $b < c$, although c is usually found not to be unity, as hypothesized by Friedman.

Another kind of income is life-time income or wealth. The Life-Cycle Hypothesis postulates that individuals plan no net life-time savings, that is, they inherit nothing and bequeath nothing to posterity. Instead, they attempt to spread their life-time consumption optimally over their life-time. They accumulate enough savings during their earning years to pay for their dissavings during the pre-earning and post-earning periods.

---

[145] Mikesell and Zinser, "The Nature of the Savings Function in Developing Countries," p. 8.

[146] See Williamson, "Personal Saving in Developing Nations."

[147] See I. Friend and Paul Taubman, "The Aggregate Propensity to Save: Concepts and their Applications to International Data," *Review of Economics and Statistics* 48 (May 1966): 113-23.

[148] See Kanhaya L. Gupta, "Personal Saving in Developing Nations: Further Evidence," *Economic Record* 46 (June 1970): 143-49.

It is virtually impossible to test the Life-Cycle Hypothesis in developing countries because consistent and continuous data on, among other things, the age-distribution of the population of the countries are often not available. For example, in Uganda, such data can be obtained only for the years 1948, 1959, and 1969 (the population census years). However, two studies that applied the hypothesis--one by Kelley and Williamson[149] and the other by Leff[150] --are worth mentioning. Kelley and Williamson applied the hypothesis to Indonesia, and Leff applied it to twenty-four countries. The studies found that birth rates and saving rates are inversely related and that, in general, the MPS in developing countries varies directly with age.

The last kind of income to be considered is relative income. The Relative Income Hypothesis asserts that it is the relative, rather than the absolute, level of income that determines consumption (and, therefore, saving). Individuals have a tendency to "keep up with the Joneses," and to resist abrupt decreases in their consumption.

---

[149] See A.C. Kelley and J.G. Williamson, "Household Saving Behaviour in Developing Economies: The Indonesian Case," *Economic Development and Cultural Change* 16 (April 1968): 385-403.

[150] See Nathaniel H. Leff, "Dependency Rates and Savings Rates," *American Economic Review* 59 (December 1969): 886-96.

This is another difficult hypothesis to test in developing countries. Nevertheless, Nurkse used this theory to explain differences in saving ratios (APSs) across countries. He also used it to explain why developing countries find it exceedingly hard to raise their saving in the face of the tempting supply of consumer goods from developed countries.[151] Thus, because they try to keep up with the developed countries, developing countries consume more and save less of their incomes than they would otherwise do.

The Rate of Interest

Saving is hypothesized to vary directly with the rate of interest for the rate of interest is the return on saving.

However, for a number of reasons, in developing countries, the rate of interest may be irrelevant as far as people's decisions to save are concerned.[152] The market rate of interest is usually kept below its equilibrium level in these countries, as Park points out.[153] Moreover, people are usually unresponsive to small changes in the rate of

---

[151] See Ragnar Nurkse, *Problems of Capital Formation in Underdeveloped Countries* (New York: Oxford University Press, 1967), pp. 36-44.

[152] In fact, Hubner claims that in Uganda the rate of interest does not affect saving. See Gunther Hubner, "Private Saving in Uganda," in Peter Marlin, ed., *Financial Aspects of Development in East Africa* (Munich: Weltforum Verlag, 1970), pp. 148-49.

[153] See Yung Chul Park, "The Role of Money in Stabilization Policy in Developing Countries," *IMF Staff Papers* 20 (1973): 379-430. Also see Edward A. Arowolo, "The Development of Capital Markets in Africa."

interest in such countries. So, unless interest rates change substantially, saving may not change in response.

However, even if the interest rate changes are significantly large, people with very low incomes--the majority of the people in developing countries--may not respond to the changes at all. Lastly, the concept of the interest rate may be socially unacceptable in some countries. For instance, for religious and cultural reasons, interest rates are taboo in many a developing country.

Nevertheless, studies by Williamson and Brown turned out significant results. Williamson found that real interest rates and national saving are, generally, negatively correlated; and Brown also came up with similarly significant results in his study of the Korean monetary reform.[154] Finally, it is worth noting that, as Mikesell and Zinser point out,

> the relationship between interest rates and aggregate saving involves a number of complex theoretical and econometric problems; the most important are separating out income and substitution effects of interest changes, quantifying the role of expectations and planning horizons in saving decisions, and solving a difficult identification problem. Further, it seems likely that interest rates are more significant in determining the channels into which savings will flow . . . than in altering savings propensities.[155]

Dependency Ratios

The vital question in respect to the degree of dependency concerns the net effect of dependents on the saving efforts of a community. In general, it is hypothesized that dependency ratios and saving rates are inversely related. Leff's study referred to earlier seems to vindicate this hypothesis. However, Gupta found that dependency ratios are not always significant determinants of the rate of saving.[156]

---

[154] See Mikesell and Zinser, "The Nature of the Savings Function in Developing Countries," pp. 17-18.
[155] Ibid., p. 17.

Three studies on saving in Uganda were undertaken by Howe,[157] Hubner,[158] and Waldorf.[159] All of the studies were based on cross-sectional data; and they all implicitly took dependency ratios into account. All variables used in the studies were deflated by population (or the number of dependents in each household), thus recognising that dependency and saving rates are correlated. The results of these studies will be discussed later.

Foreign Capital Inflows

In theory, capital inflows--or foreign "aid" in general--are supposed to supplement and encourage domestic saving as they help narrow or close the "resource gap" or the "trade gap."[160]

---

[156] See Kanhaya L. Gupta, "Dependency Rates and Saving Rates: Comment," *American Economic Review* 61 (June 1971): 469-71.

[157] See Charles W. Howe, "An Analysis of African Household Consumption and Financial Behaviour in Kenya and Uganda," *East African Economic Review*, New Series 4 (June 1968): 51-61.

[158] See Hubner, "Private Saving in Uganda."

[159] See William H. Waldorf, "A Comparison of Savings Rates in Uganda: Africans, Asians, and Europeans," *Journal of Development Studies* 13 (April 1977): 229-37.

[160] If RG, TG, IM, X, S and I denote the resource gap, the trade gap, imports, exports, saving, and investment, respectively, then RG = I - S and TG = IM - X. The resource and trade gaps are sometimes referred to as the "saving gap" and

Capital inflows are aimed particularly at the trade gap. Hence, it is argued that saving and capital inflows are positively correlated.

However, studies by Rahman[161] and Landau,[162] among others, produced results contrary to this idea of a positive relationship between saving and foreign capital inflows. Further, Gupta's study[163] found no significant relationship between saving and capital inflows.

Thus, the effect of foreign capital or "aid" on saving in developing countries seems to be uncertain. We shall investigate this phenomenon further (in reference to Uganda) in Chapter VII.

Taxation

In theory, taxation is regarded as an important means of mobilizing saving in developing countries.[164] Government saving is hypothesized to increase with increased taxation.

---

[160] (cont'd)the "foreign exchange gap," respectively; and both are considered to be very serious constraints on the growth and development of a developing country. It is then not difficult to see why need arises to narrow, or better still, to close the gaps. Note that as regards capital inflows, a fixed exchange rate system tends to be expansionary, unlike a flexible exchange rate regime.

[161] See M.A. Rahman, "Foreign Capital and Domestic Saving: A Test of Haavelmo's Hypothesis with Cross-Country Data," *Review of Economics and Statistics* 50 (February 1968): 137-38.

[162] See Luis Landau, "Differences in Saving Ratios Among Latin American Countries."

[163] See Kanhaya L. Gupta, "Foreign Capital and Domestic Savings: A Test of Haavelmo's Hypothesis with Cross-Sectional Data: Comment," *Review of Economics and Statistics* 52 (May 1970): 214-16.

[164] See, for example, W. Heller, "Fiscal Policies for Underdeveloped Countries," in R. Bird and O. Oldman, eds., *Readings on Taxation in Developing Countries* (Baltimore: Johns Hopkins Press, 1967).

Hence, national saving is supposed to vary directly with taxation. It is implicitly assumed that the government's marginal propensity to save is higher than that of the taxed public, so that a transfer of resources in favour of the government necessarily raises national saving.

Various studies have questioned the above hypothesis. The most important studies in this area are those by Stanley Please.[165]Please showed that in several cases, increased taxation may have led to decreased, rather than increased, saving. This apparent negative correlation between saving and taxation is generally known as the "Please Effect." Other studies have questioned the validity of the "Please Effect."[166]

Financial Intermediation

Earlier, the role of financial intermediation in the saving-investment process was discussed. From that discussion, it follows that financial intermediation encourages saving. Various studies and analyses have laboured this point. Among these, the most outstanding are those of Goldsmith,[167] Gurley and Shaw,[168]

---

[165] See, for instance, Stanley Please, "Savings Through Taxation--Mirage or Reality," *Finance and Development* 4 (March 1967): 1-10.

[166] See Mikesell and Zinser, "The Nature of the Savings Function in Developing Countries," pp. 15-16.

[167] Goldsmith has researched and written extensively in this area. That financial intermediation enhances saving is elaborated upon in details in his *Financial Structure and Development*.

[168] See Gurley and Shaw, *Money in a Theory of Finance*. Also see their "Financial Structure and Economic Development," *Economic Development and Cultural Change* 15 (April 1967):

Patrick,[169] and Tun Wai.[170]

Other studies that have supported the thesis that financial intermediation and saving are directly related include those by the United Nations Commission for Asia and the Far East (ECAFE) and by Brahmanda.[171] Nevertheless, Marquez found saving in South America to be more "income-elastic" than "institution-elastic," that is, saving in the region is more responsive to the growth of income than to the presence and growth of institutions.[172]

Other Economic Factors

Other economic factors expected to have a significant influence on national saving include exports (or imports) and the degree of inflation. Whereas "moderate" inflation may encourage saving by raising the return on saving (or investment), "serious" inflation (such as a hyperinflation) definitely leads to decreased saving. The effect of net exports on saving is as uncertain as that of foreign "aid," and will partly depend on the government's foreign exchange policy.

---

[168] (cont'd)257-68; and John G. Gurley, "Financial Structure in Developing Countries," in David Krivine, ed., *Fiscal and Monetary Problems in Developing States: The Proceedings of the Third Rehovoth Conference* (New York: Praeger Publishers, 1967).

[169] See Patrick, "Financial Development and Economic Growth in Underdeveloped Countries," pp. 174-89.

[170] See U Tun Wai, *Financial Intermediaries and National Savings in Developing Countries*.

[171] Ibid., pp. 45-47.

[172] See Jarvier Marquez, "Financial Institutions and Economic Development," in International Economic Association Conference Proceedings, *Economic Development for Latin America* (New York: Macmillan and Co., 1961), chapter 7.

Non-Economic Factors

Needless to say, socio-political factors will also affect a country's rate of saving. These non-economic factors include the Adam Smithian "self-interest" (an innate urge to better oneself), race, political stability, occupation, and location, to mention a few examples.

It is argued that self-interest urges individuals to increase their saving rates; that some races are more thrifty than others; that farmers normally have a higher saving rate than civil servants, whose incomes are more predictable than those of farmers; and that immigrants tend to save more than people with comparable incomes and jobs in their countries of origin. Further, it is obvious that political instability and saving are inversely correlated; and it may well be that certain political superstructures are more conducive to saving than others.

Non-economic factors definitely affect saving in Uganda in various ways. However, Waldorf's study appears to show that racial factors are not a significant determinant of saving in the country.[173] Mainly due to lack of data, no attempt will be made in this study to assess the effects of these non-economic factors on the rate of saving in Uganda.

A General Theory of Saving

The preceding subsections suggest the following general theory of real gross national saving (S):

$$S = S(Y, K, r, N, CI, T, L, SC, FI, (DP/P), e, u) \tag{4.3}$$

---

[173] See Waldorf, "A Comparison of Saving Rates in Uganda."

where

Y = Real income;

K = Real wealth;

r = "the" real rate of interest;

N = the degree of dependency, or the dependency ratio;

CI = Real foreign capital inflows;

T = the real tax revenue;

L = Position on the life-cycle: pre-earning, earning, or post-earning;

SC = Social status (or class) of the saver;

FI = Degree or level of financial intermediation;

(DP/P) = the rate of change of prices (inflation);

e = other economic factors;

u = Non-economic factors.

Most of the studies on saving in developing countries use nominal variables.[174] However, in this study, both nominal and real variables will be employed, since data on prices are available.

In theory, S varies directly with Y, K, r, CI, T, and FI; and it varies inversely with N and SC (the dummy for the "keeping up with the Joneses"). The relationship between S and e and u is *a priori* indeterminate. S varies directly with L when the L represents the earning stage of life, otherwise S and L are inversely correlated. Finally, our review of the evidence revealed, among other things, that the relationship between S, on the one hand, and r, CI, (DP/P), and T, on the other hand, is also *a priori* indeterminate.

---

[174] See Mikesell and Zinser, "The Nature of the Savings Function in Developing Countries;" and Snyder, "Econometric Studies of Household Saving Behaviour in Developing Countries."

Chapter VII will investigate, *inter alia*, the empirical determinants of saving in Uganda using variants of equation (4.3).

B. Theoretical Determinants of Investment

As mentioned in Chapter I, the analysis of investment will not be as extensive as that of saving has been. The intention in this section is to highlight only the main determinants of investment.

In 1971, Jorgenson published a survey of the different theories of investment.[175] The survey also contains a detailed review of some evidence from econometric studies of investment behaviour in the United States. The survey has been complemented by Klein's presentation of "the state of the art."[176] Klein's work concentrates on an "outline of issues in contemporary investment analysis as they now appear to me."[177] The issues include the specification of the investment function, the estimation technique appropriate to the investment model, the testing of different models

---

[175] See Dale W. Jorgenson, "Econometric Studies of Investment Behavior: A Survey," *Journal of Economic Literature* 9 (December 1971): 1111-47.

[176] See Lawrence R. Klein, "Issues in Econometric Studies of Investment," *Journal of Economic Literature* 12 (March 1974): 43-49.

[177] Ibid., p. 43.

of investment behaviour, and policy implications of the theory of investment. Further, in a comment on Klein's work, Eisner stresses the importance of expectations in determining investment behaviour.[178]

The post-Keynesian investment function is based on the accelerator principle. Thus, investment is determined by changes in income (DY) and the rate of interest (r):

$$(4.4) \qquad I = I(DY, r);$$

$$dI/dDY > 0; \qquad dI/dr < 0;$$

where I is real investment and the remaining variables are as defined before. Note that here the analysis is restricted to the so-called "naive accelerator principle" as it adequately serves the purpose.[179]

Other variables usually regarded as determinants of investment include the profit rate (PR), the supply price of capital (q), and the rate of expected inflation (DP/P)*. The profit rate is a proxy for the availability of internal funds to the firm. Investment is supposed to vary directly

---

[178] See Robert Eisner, "Issues in Econometric Studies of Investment: Comment," *Journal of Economic Literature* 12 (March 1974): 49-50.

[179] For other versions of the accelerator principle and detailed analyses of the theories of investment, refer to, say, P.N. Junankar, *Investment: Theories and Evidence*, Macmillan Studies in Economics (London: The Macmillan Press, 1972); Michael K. Evans, *Macroeconomic Activity: Theory, Forecasting, and Control* (New York: Harper and Row, 1969); Robert Eisner and R. Strotz, "Determinants of Business Investment," in Commission on Money and Credit, *Impacts of Monetary Policy* (Englewood Cliffs, New Jersey: Prentice-Hall, 1963); and Dale Jorgenson, "Econometric Studies of Investment Behavior."

with the profit rate.[180] The availability of internal funds enables the firm to "plough back," that is, to finance some of its investments from internally generated funds.

The q is a proxy for the availability and the price of external funds. the higher is the price of capital goods (q)--rather than the opportunity cost of capital (r), which has already been included in the model--the lower will be the volume of investment by the firm, other things being equal.[181] Thus, if external finance is relatively cheap, the firm will tend to increase its borrowing and investment, and vice versa.

The effect of expected inflation on real investment is *a priori* indeterminate. It depends on the levels of both the current rate and the expected rate of inflation. Real investment should vary directly with the (DP/P)*, provided inflation is "not severe." However, "severe" inflation should discourage investment in the same way it discourages saving.

In addition, from earlier arguments, the degree or level of financial intermediation also affects investment. Financial intermediation enhances both saving and investment.

---

[180] See, for example, E. Kuh, *Capital Stock Growth: A Microeconomic Approach* (Amsterdam: North Holland, 1963).
[181] See, for example, F. Modigliani and M.H. Miller, "The Stock of Capital, Corporation Finance, and the Theory of Investment," *American Economic Review* 48 (June 1958): 261-97; and their "Some Estimates of the Cost of Capital to the Electric Utility Industry, 1954-57," *American Economic Review* 56 (June 1966): 333-91.

Thus, the general investment function for an economy is of the following form:

(4.5) $$I = I(DY, r, PR, (DP/P)^*, q, FI, u)$$

where the variables are as defined before. The partial derivatives of (4.5) are all hypothesized to be positive, except those with respect to r and q which are negative, and that with respect to the $(DP/P)^*$, which is indeterminate.

In empirical studies, many of the arguments of the investment function appear with various lags that differ from study to study.[182] In addition, different studies stress different determinants of investment. The DY (or just the Y), the rate of interest, and the supply price of capital almost always turn up to be the most important determinants of investment.[183]

In the next section and in Chapter VI, a review of some studies of investment in developing countries will be presented. However, because of insufficient data on variables such as the profit rate and the supply price of capital, the empirical analyses reported in Chapter VII will concentrate on the DY (or Y), r, FI, and $(DP/P)^*$ as the major determinants of investment in Uganda other than foreign "aid." Besides, this study will not concern itself with current controversies in investment theory as such controversies are beyond the scope of the thesis.[184]

---

[182] See, for example, Junankar, *Investment: Theories and Evidence*, pp. 62-65.

[183] See Jorgenson, "Econometric Studies of Investment Behavior; " or Jorgenson, "The Theory of investment Behavior," in R. Ferber, ed. *Determinants of Investment Behavior* (New York: Columbia University Press, 1967); or Jorgenson and J.A. Stephenson, "Issues in the Neoclassical Theory of Investment Behavior," *Review of Economic Studies* 51 (August 1969): 346-53.

C. A Model of Financial Development and Capital Formation

The preceding section on investment takes financial intermediation or development as merely one of the independent variables in the investment function. In this section, a model is formulated to test the hypothesis that the level of financial development is a significant constraint on the rate of capital formation, and, therefore, on the economic development of a country.

The model is given by the following macroeconomic equations:

(4.6) $Y = C + I + G + X - IM$

(4.7) $S = S_1 + S_2$

(4.8) $S_1 = a(Y - T)$

(4.9) $S_2 = b.Z(Y - T)$

(4.10) $G = cY$

(4.11) $T = dY$

where C, G, T, and Z are the real private consumption, real government expenditure on goods and services, real direct tax revenue, and an index of financial development, respectively; a, b, c, and d are parameters (each assumed to be nonnegative and not greater than unity); S_1 is saving that depends on income alone, and S_2 is saving that depends on both income and the degree of financial development; X and IM denote exports and imports, respectively; and the remaining variables are as defined before.

---

[184] For a summary of the major controversies in investment theory, see Junankar, *Investment: Theories and Evidence*, pp. 65-69.

Equation (4.6) is an equilibrium condition, while equation (4.7) is a decomposition of saving into two parts: S_1 and S_2. Equation (4.8) states that non-financial ("unintermediated") saving is a linear function of income; and equation (4.9) posits that financial ("intermediated") saving depends on both income and the degree of financial development, Z. If there is no financial intermediation, $Z = 0$, so that $S_2 = 0$; otherwise $Z > 0$, so that $S_2 > 0$. Lastly, (4.10) and (4.11) state that G and T are linear functions of income.

Let us examine Z a little further. Its time path should be upward sloping, that is, $dZ/dt > 0$. This means that Z increases over time. However, $d^2Z/dt^2 < 0$. Financial development has an upper limit. Diminishing returns to financial intermediation will set in as more and more financial instruments are issued. In other words, financial widening and financial deepening have a limit insofar as their encouraging the saving-investment process is concerned. On this point, Tun Wai writes:

> Although financial intermediation has an important role to play in the savings process, it can be subject to diminishing returns, and merely increasing the supply of instruments will not always stimulate savings.[185]

---

[185] Tun Wai, *Financial Intermediaries and National Savings in Developing Countries*, p. 45.

In their study based on data drawn from sixty developing countries for the period 1962-1966, Christian and Pagoulatos also assumed diminishing returns to financial intermediation.[186]

Now, rearranging (4.6), we derive (4.12) below:

(4.12) $I = (Y - C) - G + (IM - X)$

Note that $S = (Y - C)$ and capital inflows, $CI = (IM - X)$. Lastly, substituting (4.7) - (4.11) into (4.12) and dividing every term by Y, (4.13) below is obtained:

(4.13) $I/Y = (a - c - ad) + (b - bd)Z + CI/Y.$

However, not all the foreign capital inflows (CI) are actually used to finance capital formation. Some fraction of the CI goes into consumption spending. Denote that proportion of total foreign capital inflows used to finance domestic capital formation by, say, e_2. Then

(4.14) $I/Y = e_0 + e_1Z + e_2CI/Y.$

Note that e_0 and e_1 are functions of $(a - c - ad)$ and $(b - bd)$, respectively.

Next, by assuming that Z is exogenously determined, (4.14) becomes a "reduced-form" equation that can be employed to test the hypothesis mentioned at the beginning of this section.[187]

---

[186] See James W. Christian and Emillo Pagoulatos, "Domestic Financial Markets in Developing Countries: An Econometric Analysis," *Kyklos* 26 (Fasc. 1 1973): 75-90.

[187] The degree of financial development is hypothesized to influence saving, as already pointed out. However, the level of savings (or income) may have a significant impact on financial development. That financial development or intermediation influences saving (and income) and is, in turn, influenced by saving (and income) will be discussed in

In Chapter VII, Z will be regarded as an exogenous variable and a proxy for it will be used in obtaining the empirical equivalent of equation (4.14). The relevant hypothesis will then be tested.

D. Financial Institutions and "Leakages"

It was pointed out in Chapter II that many of the financial intermediaries operating in Uganda are expatriate (foreign-owned) institutions. In fact, the expatriate institutions are mere branches of multinational corporations with headquarters in Europe (mainly in London) or in Asia.

Sweezy regards multinational corporations as

> . . . forms and mechanisms of imperialism, not its essence. This of course does not mean that they are unimportant. Imperialism could not exist without appropriate mechanisms.[188]

Consequently, he argues that development under the auspices of these corporations has far-reaching perverse effects on the indigenous economy (the periphery). This is because the corporations enhance the resource-drainage mechanism, among other things.

As noted earlier, there are no substantial differences between expatriate and indigenous financial institutions in Uganda, especially insofar as their operations are concerned. Hence, some of the misdeeds ascribed to the expatriate institutions will apply to the indigenous

---

[187] (cont'd)the following chapter.

[188] Sweezy, "Multinational Corporations and Banks," p. 1.

financial institutions. This point will merit further comment at a later stage.

In Chapter VII, an attempt will be made to measure some of the "leakages" these institutions in Uganda cause. Therefore, the part played by these institutions in the economic "draining away" of resources from the country will be assessed. Specifically, statistical analyses of the indebtedness of the institutions to foreign bodies (especially their headquarters) and their role in capital flights from the region will be undertaken. The overall objective will be to determine whether or not their net contribution is positive.

E. Financial Intermediation and Monetization

Monetization is defined as ". . . the extension through time and space of the use of money . . . to the nonmonetized (subsistence and barter) sector."[189] It is measured by the ratio of the total value of goods and services paid for in money terms to the total value of national output.

The inimical implications of a large subsistence sector, inefficient as it is, argues for increased monetization. The subsistence sector ought to be reduced as much as possible. Financial intermediation should, therefore, strive to shrink the nonmonetized sector.

---

[189] Chandavarkar, "Monetization of Developing Economies," p. 665.

In Chapter VII, empirical work will be undertaken to assess the magnitude of the sector, and, consequently, the role that financial intermediation has played in reducing the size of the sector over time. A model of the following nature will be used to test the hypothesis that financial intermediation has enhanced monetization in Uganda:

(4.15) $MR = f(DY/Y, FI)$

where MR is the monetization ratio and DY/Y is the rate of growth of real income. The two partial derivatives in equation (4.15) are hypothesized to be positive.

CHAPTER VI

FINANCIAL INTERMEDIATION AND THE SAVING-INVESTMENT PROCESS IN UGANDA: A THEORETICAL ANALYSIS OF SIMULTANEOUS EQUATION MODELS

In this chapter, a theoretical analysis of simultaneous equation models of financial intermediation and development in Uganda is undertaken. Two empirical models are discussed. The first model draws upon the simultaneous equation models of Leff and Sato,[190] Gupta,[191] and Yoo,[192] and the second model is based on the well-known work by McKinnon.[193]

It has been argued in this study that the chain of causation runs from financial intermediation to saving, that is, intermediation enhances saving. However, it has been argued in the literature that causation may run in the reverse direction; the setting up of financial intermediaries as well as financial deepening may result from the existence of "unintermediated" savings in the economy.[194] Thus, it appears that causation runs both ways; financial intermediation enhances, and is itself enhanced, by the saving-investment process. Supply-leading and demand-following are the terms used in the literature to refer to these phenomena. The first simultaneous equation model, Model I, is designed, among other things, to test these phenomena. The underlying question is: Has financial intermediation in Uganda been supply-leading or has it been demand-following, or both?

---

[190] See Nathaniel H. Leff and Kazuo Sato, "A Simultaneous-Equation Model of Savings in Developing Countries," *Journal of Political Economy* 83 (December 1975): 1217-28.

[191] See Kanhaya L. Gupta, "Foreign Capital Inflows, Dependency Burden, and Saving Rates in Developing Countries: A Simultaneous Equation Model," *Kyklos* 28 (July 1975): 358-74.

[192] Jang H. Yoo, "The Role of Money as a Conduit of Savings and Investment in the UDCs," *Kyklos* 30 (November 1977): 520-25.

[193] Ronald I. McKinnon, *Money and Capital in Economic Development* (Washington, D.C.: Brookings Institution, 1973). Also see Ronald I. McKinnon, ed. *Money and Finance in Economic Growth and Development* (New York: Marcel Dekker, 1976).

Consequently, in the first model, there is a specific equation formulated to test the demand-following phenomenon, which, according to the literature, may not have been tested before. However, as will be explained later, the model is also an improvement on previous simultaneous equation models of the saving-investment process in developing countries. It ties together the theoretical work on simultaneous equation estimation of saving and investment rates in the countries.

The second model, Model II, is an aggregate formulation of the saving-investment process. The basic objective in formulating this model was to test the validity of the McKinnon complementarity hypothesis in Uganda's context. Given that the Ugandan economy is fragmented and that there exist financial repression in the economy, it is evident that the McKinnon approach (as opposed to the Keynesian and the neoclassical approaches) may be relevant in Uganda's case. The basic features of this model are the demand for money and the investment functions, which are formulated in accordance with the McKinnon approach. The validity of this thesis in Uganda's case would lead to far-reaching policies in regard to financial intermediation. For instance, if the approach applies, then it would be in Uganda's interest to discourage financial repression as well as to encourage financial intermediation at both the extensive and the intensive margins, other things being equal.

---

[194] See Patrick, "Financial Development and Economic Growth in Underdeveloped Countries."

The two models draw on McKinnon's work, especially in the *a priori* considerations of the signs of some of the partial derivatives. Needless to say, the second model is the empirical version of the McKinnon approach. The models, as already pointed out, are different insofar as their objectives are concerned.

The chapter is divided into three sections. The first section is devoted to a brief exposition of the complementarity hypothesis, the basic theme in McKinnon's work, in order to simplify discussion of the two models. The second and third sections are then devoted to the presentation of the models. In the course of the chapter, the review of the literature and evidence started in the last chapter will be extended.

The two simultaneous equation models are new in the sense that never before have such models been formulated in their entirety; although, as will be noted later, many of the equations comprising the models are modifications of equations drawn from various other studies on developing countries.

A. Money and Physical Capital: The McKinnon Approach

In this section, a rudimentary model is presented to demonstrate the McKinnon thesis that the demand for real cash balances and the demand for physical capital are highly complementary, rather than substitutable, in private asset portfolios.[195] The model will serve as a frame of reference in the analyses of the next two sections.

McKinnon's thesis complements the work of Gurley and Shaw;[196] and since its appearance in 1973, it has been elaborated upon, complemented, extended, and tested by Shaw,[197] Bhatia and Khatkhate,[198] and Galbis,[199] among others.

The model is based on three fundamental premises.

---

[195] Ronald I. McKinnon, *Money and Capital in Economic Development*. Also see Ronald I. McKinnon, ed., *Money and Finance in Economic Growth and Development.*

[196] See Gurley and Shaw, *Money in a Theory of Finance*; and their "Financial Aspects of Economic Development."

[197] Edward S. Shaw, *Financial Deepening in Economic Development* (New York: Oxford University Press, 1973).

[198] Rattan J. Bhatia and Deena R. Khatkhate, "Financial Intermediation, Savings Mobilization, and Entrepreneurial Development: The African Experience," *IMF Staff Papers* 22 (March 1975): 132-58.

[199] Vincente Galbis, "Financial Intermediation and Economic Growth in Less-Developed Countries: A Theoretical Analysis," *Journal of Development Studies* 13 (January 1977): 58-72.

First, it is assumed that the price level (P) is determined by the demand for and supply of nominal money. Second, it is assumed that individuals form expectations about future price changes--expectations that influence their desired real cash balance holdings. Third, it is assumed that monetary authorities can control the supply of money so that

$$M^o = M \qquad (6.1)$$

where M is a fixed quantity of money and M^o is the nominal supply of money.

The authorities' ability to control M^o implies that they determine the real return (d) on holding money. They determine the d by controlling the rate of growth of money, dM^o/dt, and the nominal return (D) to the holders of money. Thus, by controlling M^o and D, the authorities determine the $d = D - (DP/P)^*$, where the $(DP/P)^*$ is, as before, the expected rate of inflation. Note that the authorities influence the $(DP/P)^*$ by means of their monetary (or financial) policies.

As pointed out in Chapters II and III above, the Ugandan economy is dual. A dual economy is fragmented "in the sense that firms and households are so isolated that they face different effective prices for land, labor, capital, and produced commodities and do not have access to the same technologies."[200] There is lack of organized finance in the economy.

---

[200] McKinnon, *Money and Capital in Economic Development*, p. 5.

Next, the following simplifying assumptions are made:

1. The only kind of money available is outside money (that is, notes and coins in circulation).

2. All economic units are confined to self-finance; borrowing and lending are ruled out.

3. As the firm-households in the economy are small investment tends to be "lumpy," that is, indivisibilities in investment are of considerable importance.

4. The government's tax revenue is equal to its current consumption. This rules out government capital formation.

As will be explained later, these four assumptions can be relaxed without changing significantly the main conclusion of this model.

Given the fundamental premises, assumptions 1 and 2 imply that the only financial instrument that can be accumulated or sold freely is money balances. Further, assumptions 1, 2, 3, together, imply that individual firm-households cannot "undertake . . . investments that embody best-practice technologies."[201] Thus, capital markets are imperfect in accordance with the last section of chapter III. Finally, assumption 4 limits public policy to the selection of the optimal d, since d influences the firms' decisions to invest, as will be shown below.

The complementarity between money and physical capital in a fragmented economy can now be explained.

Saving in the simple economy takes two forms: (1) the accumulation of commodity inventories for eventual sale or consumption, and (2) the accumulation of real cash balances. Note that in his accumulation of wealth, the saver-investor faces two costs: the cost of storing his own product and the opportunity cost of holding physical capital rather than money. This opportunity cost is the real return on holding money.

---

[201] Ibid., p. 56.

Suppose the saver-invester wants to purchase capital of a type he does not have. He may use some of his cash holdings, or sell off some of the commodity inventories to get the cash needed for the purpose (or both). In any case, the saver-invester must attain an optimal allocation of the real balances and physical capital in his portfolio. If d rises, he will use money more and his own inventories less as an efficient store of value, other things being equal. Thus, the volume of real balances held will vary directly with the d: an increase in d will lead to an increase in the demand for real balances, and vice versa.

Assumption 3 implies that the firm-household has to build up considerably its purchasing power at the particular point at which (or period over which) investment is undertaken. Consequently, the average time interval between income receipts and expenditure is longer in the case of investment than it is in the case of consumption. The "lumpier" the investment, the longer that time interval will be. The greater lag between income and "lumpy" investment disbursement leads to higher average cash balances in investment-oriented firm-households than in consumption-oriented firms.

To take stock, the foregoing analysis shows that

> . . . the demand for real balances will be strongly influenced by the propensity to save (invest). More precisely, if the desired rate of capital accumulation (and hence private saving) increases at any given level of income, the average ratio of real cash balances to income also increases.[202]

Hence, the (average) demand for cash balances is given by equation (6.2) below:

$$(M/P)^1 = H(Y, I/Y, d) \quad (6.2)$$

where the variables are as defined before, and all the partial derivatives are hypothesized to be positive. The function H incorporates the demand for money arising from the process of capital accumulation itself. Complementarity is reflected by the positive sign of the partial derivative dH/d(I/Y). Note that in the traditional theory, the investment ratio (I/Y) does not enter the demand for money function. However,

> . . . if money is viewed as a conduit through which accumulation takes place--rather than as a competing asset--the demand for money rises *pari passu* with the productivity of physical capital. . . . A rise in the average rate of return to physical capital increases desired cash balance holdings because the rise is associated with an increase in the investment/income ratio.[203]

The complementarity between money and capital is also reflected in the investment function, which is specified as follows:

$$I = F(r, d).Y \quad (6.3)$$

---

[202] Ibid., Figure 6-1, p. 58.
[203] Ibid., p. 60.

or

(6.4) $I/Y = F(r, d)$;

where r is the real rate of return on capital and the remaining variables are as defined before. If r increases (decreases), capital accumulation--I or I/Y--also increases (decreases). So, $dF/dr > 0$ in the McKinnon model. In addition, dF/dd is indeterminate. At "low" levels of d, the conduit effect outweighs the competing asset effect so that $dF/dd > 0$, but at "high" levels of d, the competing asset effect is predominant so that $dF/dd < 0$. (See Figure 6-1.) The following analysis will throw more light on this indeterminacy of the sign of the d.

As noted earlier, capital is very scarce in developing countries. The prevailing capital scarcity will entice the government into setting d so as to maximize self-financed investment. In fact, since the government is not a direct participant in the process of capital accumulation, it influences the process only through d. So as to preclude negative internal rates of return to investment, it is (socially) desirable that the optimal d be positive as in Figure 6-1.

The choice of the maximizing d completes the model. Given the r and this d, investment and income, as well as portfolio selection, will be determined.[204]

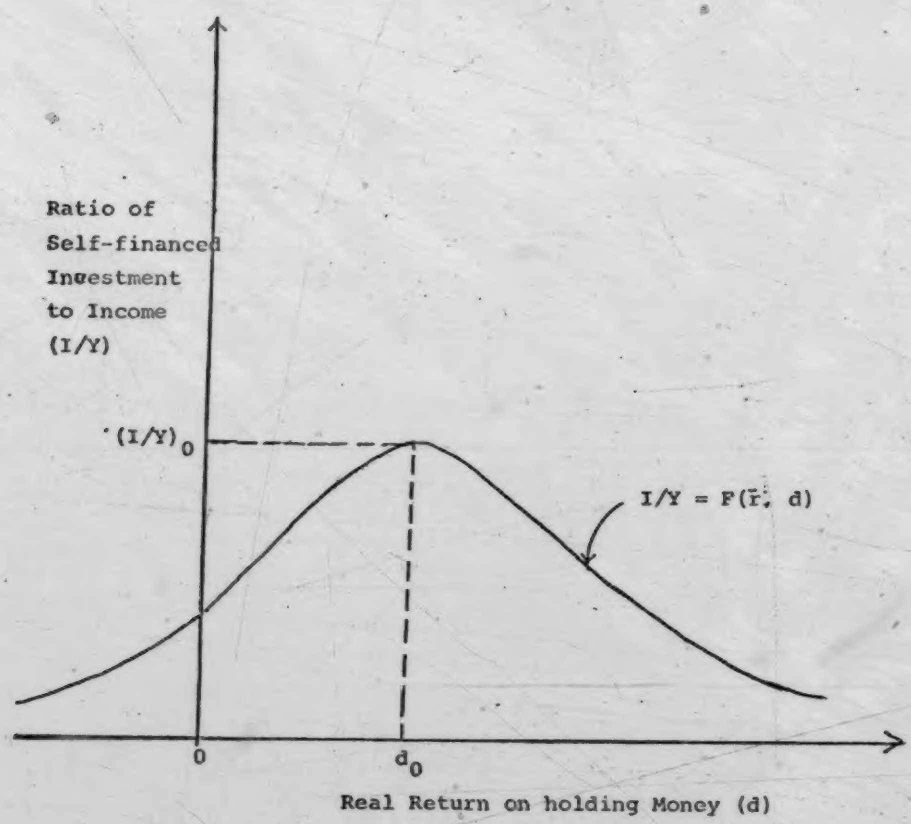
The above model can be improved upon or extended in

---

[204] This statement is made on the assumption that the market is in equilibrium. Thus, implicitly,
(6.1a) $M^0 = M^1$.

FIGURE 6-1

EFFECT OF THE REAL RETURN ON HOLDING MONEY ON SELF-FINANCED INVESTMENT



SOURCE: McKinnon, *Money and Capital in Economic Development*, Figure 6-2, p. 63.

NOTE: The "conduit" effect is dominant at low levels of d (that is, when $d < d_0$); and the "competing-asset" effect is dominant at high levels of d (at $d > d_0$).

several ways. One way is to allow for external finance. Direct external finance may be introduced into the model by allowing for financial markets; and indirect external finance may be introduced by allowing for the existence of the banking system and other financial institutions. Note that the introduction of a banking system into the model also relaxes assumption 1 (by introducing inside money). A wider definition of money may now be employed.

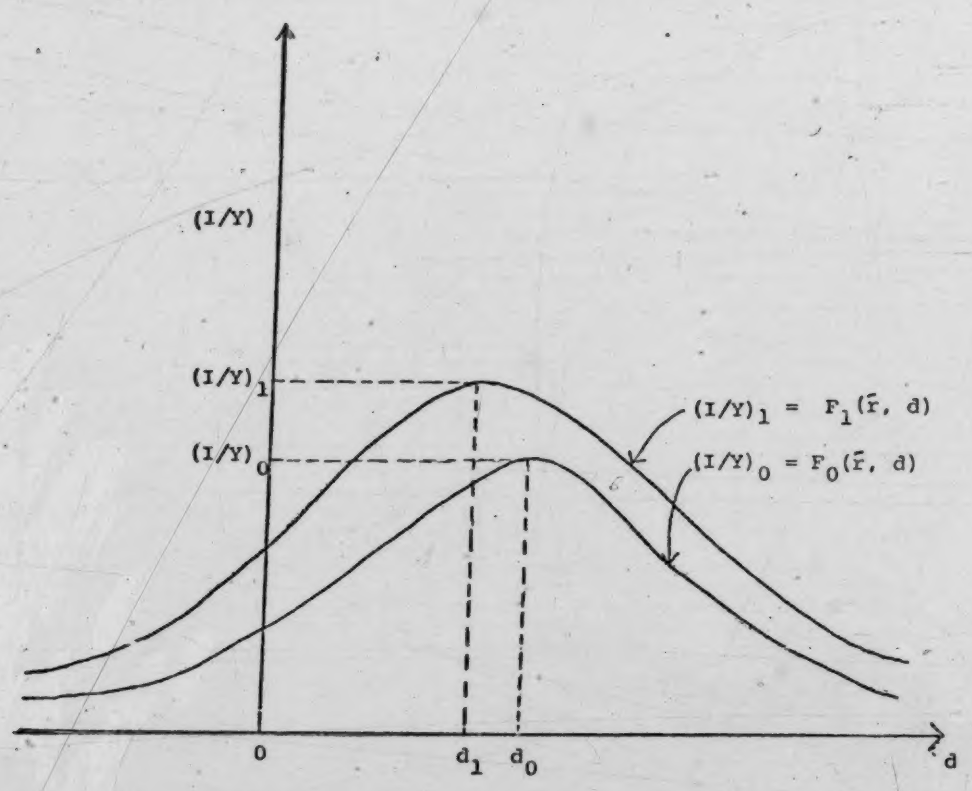
McKinnon demonstrates that the introduction of external finance will not destroy the complementarity thesis. Instead, the main effect of such an innovation will be to increase investment at the new optimal d, which is lower than the optimal d when there is no external finance. (See Figure 6-2.)

Another way of extending the model is to introduce government bonds and government capital accumulation. Further, financial repression may also be introduced into the model. The existence of financial repression implies that the D (or d) is arbitrarily fixed at a level below its equilibrium level. These changes to the model complicate it considerably but do not alter the basic complementarity between money and physical capital in any significant way. For example, it is obvious that financial repression would reduce the optimal level of investment by shifting the d of Figure 6-1 or the d of Figure 6-2 to the left.

The stage is now set for the formulation and discussion of the simultaneous equation models.

FIGURE 6-2

EFFECT OF THE REAL RETURN ON HOLDING MONEY ON SELF-FINANCED AND EXTERNALLY FINANCED INVESTMENT



SOURCE: McKinnon, *Money and Capital in Economic Development*, Figure 6-3, p. 66.

NOTE: F_1 is a total investment schedule and F_0 is the self-financed investment schedule. So, the difference between F_0 and F_1 indicates the externally financed investment.

B. Model I: A Simultaneous Equation Model of the Saving-Investment Process

The following model is spelled out in terms of rates and ratios--the saving rate (S/Y), the investment rate (I/Y), and the rate of growth of real income (DY/Y). The model draws heavily on three particular studies in the literature: one by Leff and Sato,[205] and the others by Gupta[206] and Yoo.[207]

In the Leff-Sato study, a simultaneous equation model of aggregate saving in developing countries is formulated and estimated, using time series data from five countries (Brazil, Costa Rica, Israel, Philippines, and Taiwan) for the period 1952-1969. Yoo's model is similar to that of Leff and Sato. In fact, the Yoo model is an improvement on the Leff-Sato model. In the latter model, "monetary assets are not explicitly set out from total savings and investment,"[208] while in the former model, so as to "illuminate holdings of money as a conduit through which productive assets are accumulated, . . . the Leff-Sato model is modified by introducing an 'asset portion' of money holdings into both saving and investment equations."[209] The Leff-Sato and the Yoo models are both two-equation models.

---

[205] See Leff and Sato, "A Simultaneous Equation Model of Saving in Developing Countries."

[206] See Gupta, "Foreign Capital Inflows, Dependency Burden, and Saving Rates in Developing Countries."

[207] See Yoo, "The Role of Money as a Conduit of Savings in the UDCs."

[208] Ibid., p. 521.

Both of these models draw upon McKinnon's work discussed in the previous section. The Leff-Sato model uses the real stock of credit as a reflection of monetary conditions in developing countries, while in Yoo's model, M_2 (that is, currency in circulation plus demand, saving, and time deposits at commercial banks) was used to capture the McKinnon conduit effect of money. However, the two models do not explicitly test for the complementarity hypothesis. In fact, in their model, Leff and Sato were more interested in saving (rather than investment) behaviour in developing countries. Consequently, all they required of an investment function was that "it aid in eliminating simultaneity bias in the parameter estimates" of the saving function.[210] And, although Yoo's model deals with both saving and investment behaviour, it also does not explicitly test for the complementarity hypothesis. In particular, neither model includes the real return on cash balances--the d of equations (6.2), (6.3), and (6.4) of the previous section--among their predetermined variables.

Gupta's study is also a simultaneous equation model. It is based on cross-section data drawn from forty developing countries. The study explores, *inter alia*, the total (direct and indirect) effects of foreign capital inflows and dependency ratios on saving rates in developing countries. Unlike the Leff-Sato and Yoo studies, Gupta's study uses a multi-equation model. In addition, by means of impact and elasticity multipliers, Gupta's study considers both the direct and indirect effects of the predetermined variables on the endogenous variables in the model. The Leff-Sato and Yoo models do not provide either impact or elasticity multipliers, although they, unlike Gupta's, take into account the effect of financial intermediation on the saving-investment process.

---

[209] Ibid., p. 521.

[210] Leff and Sato, "A Simultaneous Equation Model of Saving in Developing Countries." p. 1218.

The three studies all conclude that simultaneous equation estimation of saving generally gives better results that single equation estimation.

Leff and Sato found that steady-state saving ratios and income growth rates are directly correlated. Yoo found, among other things, that financial intermediation has an important role to play in the saving-investment process in developing countries. Finally, Gupta's study showed that earlier single equation studies had significantly underestimated the negative effect of dependency ratios and exaggerated the negative effect of foreign capital inflows.

The following simultaneous equation model of the saving-investment process is an improvement on the three studies discussed above. It is an improvement on Gupta's study in that it explicitly includes a separate investment rate equation and investigates the impact of financial intermediation on the development process. Because it is a multi-equation model that deals in detail with the role of financial intermediaries in development, the model is an improvement upon the Leff-Sato and Yoo models. In the model below, a separate equation--equation (6.7)--is included to test the demand-following aspect of financial intermediation. The Leff-Sato and Yoo studies did not investigate the validity of this demand-following phenomenon. Further, in their models, Leff and Sato and Yoo did not include any equations for the determination of the rate of growth of income and per capita income, which are included here as equations (6.6) and (6.8).

The following model (Model I) consists of five structural equations and one equilibrium condition:

$$(6.5)\quad S/Y = B_{10} + B_{11}(DY/Y) + B_{12}(Y/N) + B_{13}FI + B_{14}CI + B_{15}(S/Y)_{-1} + B_{16}b + E_1$$

$$(6.6)\quad DY/Y = B_{20} + B_{21}(S/Y) + B_{22}FI + B_{23}CI + E_2$$

$$(6.7)\quad FI = B_{30} + B_{31}(S/Y) + B_{32}(S/Y)_{-1} + B_{33}(DY/Y)_{-1} + E_3$$

$$(6.8)\quad Y/N = B_{40} + B_{41}(DY/Y) + B_{42}DEN + B_{43}EN + B_{44}TLPR + E_4$$

$$(6.9)\quad I/Y = B_{50} + B_{51}FI + B_{52}(DY/Y)_{-1} + B_{53}CI + B_{54}b + B_{55}r + E_5$$

$$(6.10)\quad S/Y = I/Y$$

where the endogenous variables are:

S/Y = the saving rate (the average propensity to save);

DY/Y = the rate of growth of real income;

FI = a suitable proxy for financial intermediation or development;

Y/N = the real per capita income (N = population); and

I/Y = the investment rate;

and the predetermined variables other than the dummy for the constant term are:

CI = real foreign capital inflows;

$(S/Y)_{-1}$ = the saving rate lagged one period;

b = the real borrowing rate, an average of the banks's lending rate; (this variable is highly collinear with the d);

$(DY/Y)_{-1}$ = the real income growth rate lagged one period;

DEN = the population density, a measure of the pressure the population on non-capital resources;

EN = the per capita energy consumption, a proxy for per capita fixed capital;

TLPR = the total labour participation rate: and

r = the real return on capital.

The B_{ij} (i = 1, . . ., 5; j = 0, 1, . . ., 6) are the structural parameters of the model, and the E_i (i = 1, . . ., 5) are error terms.

Equation (6.5) specifies the determinants of the saving rate. The variables (DY/Y), (Y/N), CI, and FI are included in view of earlier discussions and in accordance with Gupta's specification.[211]

---

[211] Gupta, "Foreign Capital Inflows, Dependency Burden, and Saving Rates in Developing Countries," equation (10), p. 368. However, here the dependency ratio is excluded as data

The $(S/Y)_{-1}$ is included in accordance with the Leff-Sato study.[212] The lagged saving rate variable captures ratchet effects and effects of lagged saving on current saving. By hypothesis all the partial derivatives in (6.5) are positive. These *a priori* specifications follow from earlier discussions.

Equation (6.6) follows Papanek's specification,[213] except for the inclusion of the FI among the variables on the right-hand side of the equation. In view of earlier discussions, it is hypothesized here that the economy's growth rate varies directly with the level or degree of financial intermediation. The *a priori* contentions are that all the partial derivatives in equation (6.6) are positive.

As Patrick points out, financial intermediation may be both supply-leading and demand-following.[214] On the one hand, the presence of financial institutions leads to increased saving and growth. On the other hand, the presence of "unintermediated" savings as well as the growth of the economy lead to the founding of new financial institutions and encourage financial deepening.

Specifically,

---

[211] (cont'd)on this variable are not available except for the (Population Census) years 1948, 1959, and 1969.

[212] See Leff and Sato, "A Simultaneous Equation Model of Savings in Developing countries," equation (8), p. 1220.

[213] Gustav F. Papanek, "Aid, Foreign Private Invesment, Savings, and Growth in Less Developed Countries," *Journal of Political Economy*, 81 (January/February 1973): 120-30.

[214] See Patrick, "Financial Development and Economic Growth in Underdeveloped Countries."

> Demand-following is the phenomenon in which the creation of modern financial institutions, their financial assets and liabilities, and related financial services is in response to the demand for these services by investors and savers in the real economy. In this case, the evolutionary development of the financial system is a continuing consequence of the pervasive, sweeping process of economic development. And supply-leading is the creation of financial institutions and the supply of their financial assets, liabilities, and related financial services in advance of the demand for them. . . .[215]

Thus, financial intermediation enhances and is enhanced by the growth rates of saving and the economy.

Equation (6.7) posits that the degree of financial intermediation is determined by the saving rate, the lagged saving rate, and the real income growth rate, in pursuit of the demand-following phenomenon. Equations (6.5), (6.6), and (6.9) take up the supply-leading phenomenon. All the partial derivatives in (6.7) are hypothesized to be positive.

Except for the inclusion of the (DY/Y) variable, equation (6.8) follows Gupta's specification.[216] Starting from a production function, it can be shown that, with appropriate assumptions, per capita income is a function of per capita fixed capital, the total labour participation rate, and technology. Factors like the population pressure on land (and other non-capital resources) and the economy's growth rate will also affect per capita income. Real per capita income will vary directly with all these variables, except population pressure with which it will vary inversely. Hence, by hypothesis, all partial derivatives in equation (6.8) are positive, except the partial derivative with respect to DEN. The population density (DEN) "is used to measure the pressure of the population on non-capital services, although this is only a rough measure. . . ."[217]

---

[215] Ibid., pp. 174-75.

[216] See Gupta, "Foreign Capital Inflows, Dependency Burden, and Saving Rates in Developing Countries," equation (12), p. 364.

Equation (6.9) is the investment-income ratio specification. The investment rate is hypothesized to depend on lagged effects of the real income growth rate (accelerator effects), financial intermediation, real foreign capital inflows, and two interest rates. The interest rates are the real borrowing (or lending) rate (b)--a cost to users of external finance--and the real rate of return (r) on capital of equations (6.3) and (6.4) above. As the real deposit rate (d) of equation (6.4) above is expected to be highly collinear with the b, it is not included in the equation. Except for the partial derivative with respect to the b, all the partial derivatives in equation (6.9) are hypothesized to be positive.

Finally, equation (6.10) is the saving-investment equality that completes the model. The equilibrium condition is expressed in terms of the respective average propensities in conformity with the rest of the model.

It can be demonstrated that all the equations in the above model are identified. Consequently, the two-stage least squares (2SLS) econometric technique can be employed to obtain estimates of the parameters of the model. In the next chapter, the technique will indeed be used to estimate the model.

---

[217] Ibid., p. 367.

C. Model II: A Simultaneous Equation Model Embodying the Complementarity Hypothesis

Although the model presented in the previous section (Model I) allows for the role of financial intermediation in the saving-investment process, it does not directly deal with the testing of the complementarity hypothesis, as discussed in the first section of this chapter. In Model I, the focus was on the demand-following and supply-leading aspects of financial intermediation. In this section, a model is specified to test, among other things, the complementarity hypothesis. It complements Model I by specifying structural equations in aggregate form. Further, Model II includes a McKinnon-type demand for money equation and investment function.

Thus, the main focus of Model II is the complementarity hypothesis. The model will be used to test the validity of the hypothesis in Uganda's case in the following chapter.

The model consists of five behavioural equations and two equilibrium conditions:

(6.11) $I = \theta_{11} Y + \theta_{12} (M^{o}/P)_{-1} + \theta_{13} r + \theta_{14} d + U_1$

(6.12) $M^1/P = \theta_{21} Y + \theta_{22} (I/Y) + \theta_{23} (M^1/P)_{-1} + \theta_{24} r + \theta_{25} d +$

U_2

(6.13) $Y = \theta_{30} + \theta_{31}(M^o/P)_{-1} + \theta_{32}I_{-1} + \theta_{33}DEN + \theta_{34}TEN + U_3$

(6.14) $S = \theta_{40} + \theta_{41}Y + \theta_{42}(M^o/P)_{-1} + \theta_{44}d + U_4$

(6.15) $M^o = M$

(6.16) $I = S$

(6.17) $M^1 = M^o$

where

M^1 = the nominal demand for money;

M^o = the nominal supply of money;

M = a fixed nominal quantity of money;

P = the general price level;

d = the average real return on currency and all deposits at commercial banks and near-banks;

and the remaining variables are as defined before. The θ_{ij} ($i = 1, \ldots, 4$; $j = 0, 1, \ldots, 5$) are the structural parameters of the model, and the U ($i = 1, \ldots, 4$) are error terms. The subscript -1 denotes that the relevant variable is lagged one period.

The endogenous variables are I, M^1/P, Y, and S. For simplicity, M^o is regarded as an exogenous variable. The predetermined variables are I/, DEN, TEN, r, d, the dummy for the constant term, and M (= M^o). Note that TEN = N x EN, where N is the total population and EN is as defined in Model I above.

Equation (6.11) follows McKinnon's specification of an investment function.[218] Some investment in physical capital is made out of real balance holdings. As noted earlier, investment is "often 'lumpy' in underdeveloped countries so that a part of the total M^o would be invested as capital."[219] Consequently, as money supply increases, *ceteris paribus*, investment tends to increase. It should be pointed out here that complementarity works both ways; that is, "the conditions of money supply have a first order impact on decisions to save and invest;"[220] and, as explained earlier, the demand for money is determined by the investment rate, among other things. This explains why the $(M^o/P)_{-1}$ variable is included among the determinants of investment in equation (6.11).

By hypothesis, all the partial derivatives in equation (6.11), except the one with respect to the d, are positive. The partial derivative with respect to d is, *a priori*, indeterminate. As explained in the first section of this chapter,

> although the "conduit" effect of money has been emphasized, the traditional "competing-asset" effect between money and physical capital can prevail in particular circumstances. The mixture of the two yields the ambiguous sign of the partial derivative. . . .[221]

The omission of intercepts in equations (6.11) and (6.12) is in accordance with Yoo's specification.[222]

---

[218] McKinnon, *Money and Capital in Economic Development*, equation (6-3), p. 61. In fact, this equation is a generalization of equation (6.3) above.

[219] Yoo, "The Role of Money as a Conduit of Savings in the UDCs," p. 521.

[220] McKinnon, *Money and Capital in Economic Development*, p. 60.

[221] Ibid., p. 61.

Equation (6.12) is the demand for money function. Except for the variable $(M^1/P)_{-1}$, this equation is specified in accordance with equation (6.2) of the complementarity model of section one above. The $(M^1/P)_{-1}$ term is included here because the current demand for real balances is very likely to be influenced by the previous period's demand for balances. Note that $(M^1/P)_{-1} = (M^0/P)_{-1} = (M/P)_{-1}$, a condition which follows from the clearing of markets in the previous period. Other researchers, such as Fry and Brillembourg, have also included the lagged demand for (or supply of) real balances in the current demand for the balances.[223]

All partial derivatives in equation (6.12) are hypothesized to be positive. In particular, $d(M^1/P)/d(I/Y) > 0$, "so as to reflect the basic complementarity between money and physical capital in fragmented economies."[224]

Equation (6.13) follows from earlier specifications (see equation (6.9) above). Variables $(M^0/P)_{-1}$, I_{-1}, and TEN capture the effect of (monetary and physical) capital on output, and the DEN is, as before, a proxy for the population pressure on non-capital resources. The *a priori*

---

[222] Yoo, "The Role of Money as a Conduit of Savings and Investment in the UDCs," pp. 520-22.

[223] See Maxwell J. Fry, "Money and Capital or Financial Depeening in Economic Development?" *Journal of Money, Credit, and Banking* 10 (November 1978): 472-73; and Arturo Brillembourg, "The Role of Savings in Flow Demand for Money: Alternative Partial Adjustment Models," *IMF Staff Papers* 25 (June 1978): 284-88.

[224] McKinnon, *Money and Capital in Economic Development*, p. 59.

specifications are that the partial derivative with respect to DEN is negative while the rest of the partial derivatives in (6.13) are positive.

Equation (6.14) posits that saving depends on income, lagged real balances, and the real return on money (d). As d increases (decreases), the opportunity cost of holding real balances, rather than financial assets, increases (decreases), other things being equal. Hence, the partial derivative with respect to d is expected to be positive. The remaining partial derivatives in the saving function are also hypothesized to be positive.

Finally, equation (6.15) posits that the supply of money is fixed at a level equal to M. Equations (6.16) and (6.17) are the saving-investment (the product market) and the money market equilibrium conditions. Needless to say, equation (6.15) is the same as equation (6.1) of the complementarity model discussed earlier.

In Model II, variables such as the real foreign capital inflows and the total labour participation rate have been excluded from the list of predetermined variables. This was done becauase emphasis here is on the role of real balances (and the validity of the complementarity hypothesis in Uganda's context), rather than on the determinants *per se* of saving or investment.

As the model is also identified, its parameters will be estimated in the following chapter using the two-stage least squares (2SLS) econometric technique.

In summary, insofar as financial intermediation is concerned, Model I focuses on the demand-following and supply-leading phenomena, while Model II concentrates on the complementarity hypothesis. In addition, while Model I is specified in terms of ratios and rates, Model II is spelled out in terms of aggregate variables. Thus, the models are complementary to each other.

CHAPTER VII

FINANCIAL INTERMEDIATION AND THE SAVING-INVESTMENT PROCESS IN UGANDA: AN ECONOMETRIC ANALYSIS

In this chapter, econometric procedures and results of estimating the models outlined in Chapters V and VI are presented and discussed.

The chapter is divided into nine sections. The first section is devoted to a discussion of the data used in various econometric analyses. The second section is devoted to a discussion of econometric procedures and problems; and the third, fourth, and fifth sections discuss results of the single equation models of Chapter V. The next two sections deal with simultaneous equation estimation of Models I and II of Chapter VI. The eighth section compares the single equation with the simultaneous equation results. Lastly, section nine presents the results of testing for structural change in Uganda beginning with the year 1972/73.

A. The Data

The data used in this study were obtained from different sources. (See Appendix A1.) Gross Domestic Product (GDP), gross fixed capital formation (GFCF), and the current account deficit are used as the proxies for income

(Y), investment (I), and foreign capital inflows, respectively.[225] In fact, deficits in the current account, as noted before, represent inflows of foreign saving, while surpluses represent an outflow of resources--negative foreign saving.

The data cover the period 1950-1976; or, more specifically, the fiscal years 1949/50 to 1976/77. However, the regression sample covers only the period 1949/50 - 1972/73. The absolute values of variables were all measured in millions of the relevant units, and rates and ratios were all recorded as percentages.

National Saving

Although saving by residents, or nationals, of a country should be defined as "domestic" saving, it is better to call it "national" saving in order to be consistent with the U.N. System of National Accounts. National saving is normally measured as the difference between income and consumption. However, due to lack of data on consumption in many developing countries, a different measurement approach is usually employed in such countries. The approach recognises that the countries receive foreign "aid," or capital inflows, to finance domestic investment, that is, investment made within their geographical boundaries. Therefore, to maintain the *ex post* identity between total saving (ST) and domestic investment (I), total saving should be defined as the sum of national saving (S) and saving from abroad (SF). That is,

---

[225] The choice of these proxies was dictated by the availability of data. Usually, the gross national product (GNP) and the GFCF corrected for stock appreciation are used as the proxies of Y and I, respectively. Data on net income from abroad, depreciation, and stock appreciation were not readily available; hence our choice. Also note that the current account of the balance of payments here includes unrequited transfers.

(7.1) $I = ST = S + SF.$

Hence,

(7.2) $S = I - SF.$

Thus, national saving is the difference between domestic investment and the current account deficit. In turn, gross private saving (Spr) is derived as the difference between the gross national saving (S) and government saving (Sg). Government saving is obtained by subtracting current government expenditures (exclusive of government expenditures on capital formation) from government revenue.[226] In short,

(7.3) $Spr = S - Sg.$

This study employs both equations (7.2) and (7.3) in defining gross national and gross private saving, respectively.

Financial Data

The term financial data here refers to data on financial instruments defined in Chapter IV above. As pointed out before, the financial data cover the banking system, insurance companies, government stocks and treasury bills, and a number of other financial institutions in Uganda. Data on such institutions as the unorganized money market and building societies were not available. The omission will not significantly affect the subsequent analyses.

---

[226] See Mikesell and Zinser, "The Nature of the Savings Function in Developing Countries," pp. 1-2.

Some Shortcomings of the Data

As Mikesell and Zinser point out, it is hard to obtain accurate data in a developing country.[227] The main reason is that a large part of GDP comes from the subsistence sector whose output is simply estimated by the use of United Nations guidelines to achieve international comparability. Moreover, there are communal activities leading to communal production which may not be taken account of in the estimation. For example, in Uganda, many primary school and other buildings, as well as up-country roads, are built and maintained on a communal basis by the local populace. These additions to capital are rarely recorded in money terms. Besides, villages abound with many unrecorded monetary and barter transactions that the U.N. estimation procedure may also ignore. Thus, it is likely that our data, especially on the GDP and GFCF, are underestimates.

Furthermore, as pointed out above, the situation is similarly bad in regard to financial data. There are many items that are never recorded in a systematic fashion. For instance, in Uganda, available sources do not publish financial data from institutions other than the banking system, the Post Office Savings Bank, and government funds and instruments. Consequently, the estimate of the total financial assets held by the non-financial private sector (the F of Chapter IV) as used here is also an underestimate.

---

[227] Ibid., p. 2. Also see U Tun Wai, *Financial Intermediaries and National Savings*, pp. 4-5.

These shortcomings are expected to have minimal effects on subsequent econometric analyses as the omitted instruments are quantitatively relatively insignificant. Moreover, these data problems seem to be universal in that all studies on developing countries are faced with similar problems.

B. Estimation Procedures and Problems

The Time Series Processor (TSP) computer package was used in the econometric analyses presented below. In the single equation models, the ordinary least squares (OLS) estimation technique was used, while in the simulteneous equation models, the two-stage least squares (2SLS) technique was employed.

Two econometric problems, autocorrelation and multicollinearity were encountered. Autocorrelation (the serial correlation of data) was prevalent in almost all the regressions run. The D-W (Durbin-Watson) statistics were used to test for the presence of the problem. Wherever it occurred in single equation models, it was circumvented by use of the Cochrane-Orcutt (CORC) iterative procedure, incorporated in the TSP computer package.[228] A similar procedure--the two-stage least squares Cochrane-Orcutt iterative procedure (TSCORC)--was used in getting rid of autocorretion in the simultaneous equation models discussed below.

Multicollinearity was also detected during the course of the econometric analyses. Wherever it occurred, the problem was circumvented by the procedure of dropping one of the collinear variables from the regression concerned. The rather unsatisfactory procedure of dropping variables from regressions was preferred to other alternatives (such as principal component and ridge regression analyses) as our interest lay more in the role of financial intermediation in the saving-investment process than in the determinants of saving and investment per se.[229] Thus, relatively less importance was attached to determinants of savings and investment other than financial intermediation.

---

[228] The Hildreth-Lu scanning procedure for circumventing autocorrelation (also incorporated in the TSP computer package) was used in some cases. However, there was no difference in the results obtained by using this procedure and those obtained by using the Cochrane-Orcutt procedure.

[229] An explanation of the principal component procedure for dealing with multicollinearity may be found in, say, Jack Johnston, *Econometric Methods*, 2nd ed., International Student Ed. (Tokyo: McGraw-Hill Kogakusha, 1972), pp. 322-31. For details concerning the ridge regression analysis, see Hrishikesh D. Vinod, "A Survey of Ridge Regression and related Techniques for Improvements over Ordinary Least Squares," *Review of Economics and Statistics* 60 (February 1978): 121-31; G.S. Maddala, *Econometrics* (New York: McGraw-Hill Book Company, 1977), p. 192; and A. Mukwanason Hyuha, *An Overview of Ridge Regression*, paper presented at the Institute of Statistics and Applied Economics, Makerere University, Kampala, March 1979.

Structural Change During Fiscal Year 1972/1973

A review of Tables (2-1) and (2-2) of Chapter II and Table (4-1) of Chapter IV reveals that economic activity in Uganda generally declined during the 1970s. For example, real GDP declined from a level of Shs 7,542 million in 1972 to Shs 7,411 million in 1976 (Table 2-1), while the growth rate of output of the monetary sector declined from 5.6 per cent in 1972 to -0.6 per cent in 1976 (Table 2-3). In addition, the saving ratio (S/Y) decreased from 13.8 per cent in 1972 to 6.4 per cent in 1976, and the investment ratio (I/Y) declined from 12.7 per cent in 1972 to 6.4 per cent in 1976 (Table 4-1) Further, the monetization ratio (MR) also registered a downward trend during the 1970s (Table 4-3). These declines suggest the possibility of a structural change in Uganda in the 1970s, largely due to political factors and associated economic consequences.

As noted before, in November 1972, there was an exodus of non-citizen Asians from Uganda, following an expulsion order announced on 5th August, 1972 by the Amin regime. The exodus of the Asians was preceded by that of the Israelis and followed by that of the Britons formerly owning farm businesses in Uganda. Most of the expelled Asians, Israelis, and Britons had been providing the country with badly needed skilled labour. Consequently, the outflow of personnel led to a near-collapse of the Ugandan economy. Many factories ceased production, and shortages of essential commodities were not uncommon.

This loss of skilled manpower partly explains the decline in economic activity in the country, as evidenced by the decline in real GDP. However, some activities had started slowing down as early as 1969, following the Obote regime's announced intention of turning the country into a socialist state.

In view of these facts, it became necessary during the econometric analyses to test for structural change. Use of the Chow test for structural change clearly demonstrated that Uganda had undergone structural change beginning with the year 1972/73 (see Table 7-14 below).[230] As a result, the operational sample for all of the regression results reported in this chapter covers only the period 1950-1972. The four observations on each variable omitted from the sample have been ignored because separately they constitute too small a data set to warrant attention in terms of econometric analysis.

Details concerning the Chow test procedure, as well as the results of testing for structural change in Uganda, will be discussed in the last section of this chapter.

---

[230] The test procedure is named after Gregory C. Chow. See G.C. Chow, "Tests of Equality between Sets of Coefficients in Two Linear Regressions," *Econometrica* 28 (1960): 591-605; and F.M. Fisher, "Tests of Equality between Sets of Coefficients in Two Linear Regressions," *Econometrica* 38 (1970): 361-66.

C. Estimation of Single Equation Models: Empirical Determinants of Saving in Uganda

As was evident from the review of the literature in Chapter V, many studies of the saving-investment process in developing countries have used single equation, rather than simultaneous equation, models. To facilitate direct comparison of the empirical results of the present study with results of single equation models of the process in other countries, this and the following two sections will deal with single equation estimation in Uganda's case. As stated in Chapter V, only two general forms of the saving function are tested in this study, the Keynesian absolute income hypothesis and Friedman's permanent income hypothesis.

The Absolute Income Hypothesis

Table 7-1 presents results for different functional forms of the absolute income hypothesis.

Different researchers have used different functional forms of the absolute income hypothesis. In Table 7-1, the variables are defined as follows:

S = Real total national income;

Spr = Real private saving;

FI = Level or degree of financial intermediation;[231]

N = total population;

---

[231] Here, the real value of the total financial assets held by the non-financial private sector (the F of Chapter IV) is used as the proxy for financial intermediation.

TABLE 7-1

EMPIRICAL DETERMINANTS OF SAVING IN UGANDA: THE ABSOLUTE INCOME HYPOTHESIS, 1950-1972

$$S = \underset{(1.55)}{305.2} + \underset{(2.58)}{0.098}\ Y \qquad \begin{array}{r} R^2 = 0.4550 \\ \text{D-W} = 2.33 \end{array} \tag{1}$$

$$S = \underset{(-1.17)}{-1203.4} + \underset{(1.19)}{0.165}Y + \underset{(2.26)}{0.154}\ FI \qquad \begin{array}{r} R^2 = 0.5670 \\ \text{D-W} = 2.61 \end{array} \tag{2}$$

$$\left(\frac{S}{N}\right) = \underset{(-1.15)}{-93.2} + \underset{(1.56)}{0.181}\left(\frac{Y}{N}\right) + \underset{(2.11)}{0.183}\left(\frac{FI}{N}\right) \qquad \begin{array}{r} R^2 = 0.7390 \\ \text{D-W} = 2.42 \end{array} \tag{3}$$

$$\ln(S) = \underset{(0.33)}{1.10} + \underset{(1.65)}{0.644}\ln(Y) \qquad \begin{array}{r} R^2 = 0.3523 \\ \text{D-W} = 2.29 \end{array} \tag{4}$$

$$\ln(S) = \underset{(0.21)}{0.55} + \underset{(0.23)}{0.083}\ln(Y) + \underset{(2.31)}{0.681}\ln(FI) \qquad \begin{array}{r} R^2 = 0.4929 \\ \text{D-W} = 2.12 \end{array} \tag{5}$$

$$Spr = \underset{(-1.49)}{-544.4} + \underset{(3.89)}{0.241}\ Y \qquad \begin{array}{r} R^2 = 0.7423 \\ \text{D-W} = 2.16 \end{array} \tag{6}$$

$$Spr = \underset{(-1.74)}{-347.6} + \underset{(2.49)}{0.107}\ Y + \underset{(3.36)}{0.205}\ FI \qquad \begin{array}{r} R^2 = 0.8293 \\ \text{D-W} = 2.19 \end{array} \tag{7}$$

$$\left(\frac{Spr}{N}\right) = \underset{(-2.02)}{-130.9} + \underset{(2.53)}{0.232}\left(\frac{Y}{N}\right) + \underset{(3.12)}{0.208}\left(\frac{FI}{N}\right) \qquad \begin{array}{r} R^2 = 0.7140 \\ \text{D-W} = 2.14 \end{array} \tag{8}$$

$$\ln(Spr) = \underset{(-2.17)}{-8.08} + \underset{(3.96)}{1.70}\ln(Y) \qquad \begin{array}{r} R^2 = 0.7599 \\ \text{D-W} = 2.18 \end{array} \tag{9}$$

$$\ln(Spr) = \underset{(-2.39)}{-6.44} + \underset{(2.78)}{0.992}\ln(Y) + \underset{(2.36)}{0.575}\ln(FI) \qquad \begin{array}{r} R^2 = 0.8077 \\ \text{D-W} = 2.22 \end{array} \tag{10}$$

NOTE: Students t-statistics are enclosed in parentheses below each coefficient estimate.

and the remaining variables are as defined before.

Whether total or private concepts of saving are used, the absolute income hypothesis appears to provide quite a good explanation of saving in Uganda during the observation period. Both intercept and slope estimates have the predicted signs, except in equation (1) which has an intercept estimate that is positive. However, since all of the intercept estimates associated with total national saving are all statistically insignificant even at the 90 per cent level, this sign change need not detain us. All estimates of the marginal propensity to save are statistically significant at the 95 per cent level, except in equation (2) of the table where significance is attained at the 80 per cent level.

Many researchers employ the linear form of the saving function. However, as pointed out earlier, some researchers use the logarithmic form, as in equations (4), (5), (9), and (10) of Table 7-1. Here the coefficient on ln Y (the natural logarithm of Y) represents the constant elasticity of saving with respect to income. Different values of this coefficient imply alternative sets of relationships between the marginal propensity to save (MPS) and the average propensity to save (APS). If the coefficient is unity, MPS = APS; if it is greater than one, MPS > APS; and if it is less than one, MPS < APS. In this study, it is less than one, except in equation (9), where it is equal to 1.70.

The elasticity estimate is statistically significant at the 99 per cent level in equation (9), at the 95 per cent level in equation (10), and at the 90 per cent level in equation (4), but insignificant even at the 90 per cent level in equation (5). Note that in equation (4) and (5), the estimate is definitely less than one, but in equations (9) and (10), it is at least equal to unity. This suggests that, compared to total saving, private saving in Uganda tends to be more responsive to income changes.

Furthermore, some researchers have made use of the per capita form of the saving function. Per capita saving is regressed on per capita income, as in equations (3) and (8) of Table 7-1. In equation (3), the intercept estimate is statistically insignificant, while the MPS estimate is statistically significant at the 90 per cent level. In equation (8), both intercept and MPS estimates are significant at the 95 per cent level, and have the predicted signs.

In general, the econometric results presented in Table 7-1 appear to bear out the Keynesian absolute income hypothesis as far as Uganda is concerned. This is true whether or not the real, nominal, private, or total concept of saving is used. (See Appendix A2 for results based on nominal variables.)

Next, other determinants of saving in Uganda are examined. As Table 7-1 shows, financial intermediation is an important determinant of saving in the country. The coefficient estimates on the FI are all statistically significant at the 95 per cent level. In fact, in equations

(7) and (8), the estimates are significant at the 99 per cent level.

Other variables tested for their significance in determining saving in Uganda were: the real foreign capital inflows (CI), real taxes (T), and inflation (DP/P).

Real foreign capital inflows and saving are inversely related as equations (1), (2), and (5) of Table 7-2 show. The estimated coefficients on CI and on CI/Y are negative and significant at the 99 per cent level in all cases. In regard to taxation, it appears that the "Please Effect" does not obtain in Uganda, for taxes and saving are directly, rather than inversely, related. The estimated coefficient on T (equation (3) of Table 7-2) is significant at the 95 per cent level. Finally, saving and inflation in Uganda (equations (4) and (6) of Table 7-2) appear to be inversely related. However, the relationship is weak for the estimated coefficients on the (DP/P) are insignificant at the 90 per cent level.

The real long-term rate of interest was also tested for its significance in determining saving. The real average government loan yield was used as the proxy for the real long-term interest rate. The results (not shown in the tables) showed that the long-term rate of interest does not appear to be an important determinant of saving in Uganda.

Further, as equation (2) of Table 7-2 shows, the saving rate (S/Y) varies inversely with the ratio of capital inflows to income and directly with Z, another proxy for

TABLE 7-2

MORE EMPIRICAL DETERMINANTS OF SAVING IN UGANDA, 1950-1972

$$(1)\quad S = \underset{(3.28)}{1002.3} - \underset{(-8.71)}{0.776\ CI} \qquad R^2 = 0.8119,\ \text{D-W} = 1.56$$

$$(2)\quad \left(\frac{S}{Y}\right) = \underset{(2.51)}{8.51} + \underset{(1.77)}{0.119Z} - \underset{(-5.71)}{0.669\left(\frac{CI}{Y}\right)} \qquad R^2 = 0.7370,\ \text{D-W} = 2.05$$

$$(3)\quad S = \underset{(3.13)}{464.6} + \underset{(2.35)}{0.502\ T} \qquad R^2 = 0.4236,\ \text{D-W} = 2.25$$

$$(4)\quad S = \underset{(0.66)}{221.8} - \underset{(1.77)}{0.103\ Y} - \underset{(-1.03)}{4.15\left(\frac{P}{P}\right)} \qquad R^2 = 0.3918,\ \text{D-W} = 2.34$$

$$(5)\quad Spr = \underset{((2.74)}{2151.4} - \underset{(-5.44)}{0.604\ CI} \qquad R^2 = 0.8485,\ \text{D-W} = 1.97$$

$$(6)\quad Spr = \underset{(-1.63)}{-655.1} + \underset{(3.87)}{0.261\ Y} - \underset{(-1.01)}{3.29\left(\frac{P}{P}\right)} \qquad R^2 = 0.7555,\ \text{D-W} = 2.18$$

TABLE 7-3

EMPIRICAL DETERMINANTS OF SAVING IN UGANDA: THE PERMANENT INCOME HYPOTHESIS, 1950-1972

$$(1)\quad (S)^* = \underset{(0.45)}{82.4} + \underset{(3.65)}{0.114\ Y^*} + \underset{(1.36)}{0.196\ Y^t} \qquad R^2 = 0.8015,\ \text{D-W} = 2.34$$

$$(2)\quad (S)^* = \underset{(2.41)}{422.3} + \underset{(2.06)}{0.122\ FI^*} \qquad R^2 = 0.7350,\ \text{D-W} = 1.34$$

$$(3)\quad (S)^* = \underset{(0.28)}{55.2} + \underset{(3.53)}{0.117\ Y^*} + \underset{(1.36)}{0.205\ Y^t} + \underset{(0.56)}{2.02r^*} \qquad R^2 = 0.8056,\ \text{D-W} = 2.30$$

$$(4)\quad (Spr)^* = \underset{(-3.27)}{-764.9} + \underset{(7.01)}{0.267\ Y^*} + \underset{(0.13)}{0.015\ Y^t} \qquad R^2 = 0.9448,\ \text{D-W} = 2.33$$

$$(5)\quad (Spr)^* = \underset{(1.10)}{349.4} + \underset{(3.41)}{0.211\ FI^*} \qquad R^2 = 0.9205,\ \text{D-W} = 1.38$$

$$(6)\quad (Spr)^* = \underset{(-3.19)}{-553.9} + \underset{(4.13)}{0.176\ Y^*} + \underset{(0.17)}{0.018\ Y^t} + \underset{(2.16)}{0.125\ FI^*} \qquad R^2 = 0.9566,\ \text{D-W} = 2.14$$

NOTE: Students t-statistics are enclosed in parentheses below each coefficient estimate.

financial intermediation.[232] The estimated coefficient on Z is significant at the 90 per cent level.

In summary, using the absolute income hypothesis, it was found that, for the period 1950-1973, the MPS in Uganda ranged from 0.098 to 0.261, with a mean of 0.166. These results compare favourably with results on marginal saving propensities in other developing countries.[233]

The results reported here are also consistent with Waldorf's estimates based on a 1963 survey of saving behaviour in Uganda.[234] Waldorf found the MPS to be 0.27, 0.33, and 0.25 for Africans, Asians, and Europeans in Uganda, respectively. The first two of these estimates were significant at the 99 and 95 per cent levels, respectively, but the last was insignificant even at the 90 per cent level. In addition, the present results appear to vindicate Howe's finding of an MPC in Uganda equal to 0.905 (implying an MPS of 0.095, which is close to 0.098, the estimate of the MPS in equation (1) of Table 7-1).[235]

The Permanent Income Hypothesis

The permanent income hypothesis is frequently used to explain aberrations in income. The regression results of estimating the saving function in Uganda in this form are given in Table 7-3.

---

[232] Z is actually the ratio of demand deposits to money (narrowly defined), that is, the additive inverse of the currency ratio of Chapter IV, Table 4-3. More will be said about the Z at a later stage.

[233] See Table A2-4 of Appendix A2 below.

[234] See Waldorf, "A Comparison of Saving Rates in Uganda."

[235] See Howe, "An Analysis of African Household Consumption."

Permanent income (Y*) was approximated by a weighted four-year moving average of real income. The weights were arbitrarily chosen to be 0.5, 0.3, 0.15, and 0.05, corresponding to the periods t, t-1, t-2, and t-3, respectively. Regressions were also run with other weighting patterns, such as 0.25 for all periods, and no significant change in the results was found. Other researchers have employed simple moving averages of from two to four years in estimating permanent income.[236]

In equations (1), (3), and (5) of Table 7-3, the intercept estimates are positive but statistically insignificant even at the 90 per cent level. This result is consistent with the hypothesis, which predicts the intercept to be zero. However in the remaining equations, the intercept estimates are significant at least at the 95 per cent level. It is worth noting that when total national saving (as opposed to private saving) is used, the intercept estimate appears to conform to the predictions of the permanent income hypothesis.

The estimates of the MPS out of permanent income are all positive and significant at the 99 per cent level. This MPS out of Y* varies between 0.114 and 0.267, with a mean of 0.169, just about the same as the MPS out of current income presented earlier. The estimates of the MPS out of transitory income (Yt) are, however, all statistically insignificant at the 90 per cent level, although they all have the predicted signs. The insignificance of these estimates implies that, in Uganda, people tend to consume, rather than save, all windfall incomes (contrary to the predictions of the permanent income hypothesis). This result appears to make sense, given that the majority of the people in the country are poor. The people regard such incomes as opportunities to increase their consumption, rather than their saving.

---

[236] See Mikesell and Zinser, "The Nature of the Saving Function in Developing Countries," p. 9; and Snyder, "Econometric Studies of Household Saving Behaviour in Developing Countries " pp. 141-44.

The variable "permanent" financial intermediation was also tested for its significance in determining saving in Uganda in view of our interest in this variable in this study. Permanent financial assets were used as the proxy for permanent financial intermediation. Hence, permanent financial intermediation was approximated by a weighted three-year moving average of the total real financial assets, using 0.6, 0.3, and 0.1 as the arbitrary weights. As before, other weighting patterns were tried, but no significant improvement in the results was detected.

As Table 7-3 shows, permanent financial intermediation (FI*) is an important determinant of saving in Uganda. The estimate of the MPS out of FI* is statistically significant at the 95 per cent level in all equations which include FI* among the explanatory variables. This estimate ranges from 0.122 to 0.211, with a mean of 0.147. Again, the MPS out of current FI has about the same range (from 0.154 to 0.208, as Table 7-1 shows).

Except for the MPS out of transitory income, the above results appear to bear out the permanent income hypothesis. Thus, the two hypotheses reasonably explain saving in Uganda. The R^2s are all very high, but generally higher in equations in Table 7-3 than those in Table 7-1.

Further, the results reported in Table 7-3 are consistent with results from studies that have applied the permanent income hypothesis to data from other developing countries.[237] However, some of the studies found the MPSt (the MPS out of transitory income, as opposed to the MPS*, the MPS out of Y*) to be statistically significant. For example, in Williamson's study (cited in one of the footnotes to Table 7-4), some MPSts were each greater than the corresponding MPS*, positive, and statistically significant at the 90 per cent level.

Financial Intermediation and Saving in Uganda

Table 7-5 summarizes the findings based on single equation models concerning the part played by financial intermediation in encouraging saving in Uganda. The adjusted R^2 increases in all the cases shown in the table when the proxy for financial intermediation (FI or FI*) is included among the explantory variables in a regression. This is also evident from the reasonably high t-statistics associated with the estimated coefficients on FI, or FI* and on Z in the regression results in Tables 7-1, 7-2, and 7-3.

---

[237] See Table 7-4 on the next page.

TABLE 7-4

THE PERMANENT INCOME HYPOTHESIS: SAVING IN UGANDA COMPARED TO SAVING IN SOME OTHER DEVELOPING COUNTRIES

RESEARCHER	MPS*	MPS^t	SAMPLE	PERIOD COVERED
Williamson[1]	0.20-0.29	0.37-1.12	Six Asian Countries	1950-64
Williamson[2]	0.30	0.50	Philippines	1950-64
Friend and Taubman[3]	0.065	0.41	22 Developed and developing countries	1953-60
Gupta[4] {a) Rural b) Urban	0.02 0.38	0.034 0.001	India	1950-66
Houthakker[5]	0.08	0.27	28 Countries	1953-59
Leff and Sato[6]	0.238	0.733	Philippines	1952-69
Portacio[7]	0.121	0.441	Philippines	1950-74
Savary[8]	0.159	0.111	Egypt	1949-67
PRESENT STUDY	0.114	0.196	Uganda	1950-73

[1] J.G. Williamson, "Personal Saving in Developing Nations."

[2] J.G. Williamson, "Household Saving Behaviour in Developing Countries."

[3] I. Friend and P. Taubman, "The Aggregate Propensity to Save."

[4] K.L. Gupta, "On Some Determinants of Rural and Urban Saving Behaviour."

[5] H.S. Houthakker, "On Some Determinants of Saving in Developed and Underdeveloped Countries."

[6] Leff and Sato, "A Simultaneous-Equation Model of Saving in Developing Countries."

[7] N. Portacio, Determinants of Saving in the Philippines, An M.A. Non-Thesis Paper, Dept. of Economics, The University of Alberta (1977).

[8] J.R. Savary, Monetary Policy, Saving and Income in Egypt, a Ph.D. Thesis, Dept. of Economics, The University of Alberta (1973).

TABLE 7-5

FINANCIAL INTERMEDIATION AND SAVING IN UGANDA, 1950-1972

Dependent Variable	Constant	Y	Y*	Y^t	ln Y	FI	FI*	ln FI	R^2	$\bar{R}^2$
S	350.2 (1.55)	0.098 (2.58)							0.4550	0.4291
	-1203.4 (-1.17)	0.165 (1.19)				0.154 (2.26)			0.5670	0.5237
S_{pr}	-544.4 (-1.49)	0.241 (3.89)							0.7423	0.7300
	-347.6 (-1.74)	0.107 (2.49)				0.205 (3.36)			0.8293	0.8122
$\ln(S_{pr})$	-8.08 (-2.17)				1.70 (3.96)				0.7599	0.7484
	-6.44 (-2.39)				0.992 (2.78)			0.575 (2.36)	0.8077	0.7885
$(S_{pr})^*$	-764.9 (-3.27)		0.267 (7.01)	0.015 (0.13)					0.9448	0.9379
	-553.9 (-3.19)		0.176 (4.13)	0.018 (0.17)			0.125 (2.16)		0.9566	0.9479

SOURCES: Tables 7-1 and 7- 3.

NOTE: t-statistics are enclosed in parentheses below each estimate.

Consequently, given the qualifications concerning the data employed in this study as elaborated upon above, the results appear to bear out conclusively the main hypothesis of this study: that financial intermediaries enhance saving by, say, providing an avenue for the mobilization of the savings.

D. Single Equation Models: Empirical Determinants of Investment in Uganda

In Chapter V, theoretical determinants of investment were discussed. The list of such determinants included, *inter alia*, changes in income (DY), the rate of interest (r), the rate of expected inflation (DP/P)*, and financial intermediation (FI).

Table 7-6 presents the results of regressing real investment (I) on the above determinants and on foreign capital inflows (CI). The table also shows the results of regressing the investment rate (I/Y) on the additive inverse of the currency ratio (Z) and the foreign capital inflows ratio (CI/Y).

The long-term, real average annual government loan yield is, again, used as the proxy for the real interest rate; and the value of the total financial assets held by the non-financial private sector is used as the proxy for financial intermediation. As explained earlier, Z is also a proxy for financial intermediation. Subscript t (t = -1,

TABLE 7-6

EMPIRICAL DETERMINANTS OF INVESTMENT IN UGANDA, 1950-1972

$$(1)\quad I = \underset{(2.84)}{1011.7} + \underset{(1.03)}{0.037\Delta Y_{-1}} \qquad \begin{array}{l} R^2 = 0.8546 \\ \text{D-W} = 1.92 \end{array}$$

$$(2)\quad I = \underset{(3.12)}{1079.5} - \underset{(-1.86)}{12.17r_{-2}} \qquad \begin{array}{l} R^2 = 0.8830 \\ \text{D-W} = 1.60 \end{array}$$

$$(3)\quad I = \underset{(2.82)}{1108.3} + \underset{(2.41)}{0.231CI} \qquad \begin{array}{l} R^2 = 0.8958 \\ \text{D-W} = 1.62 \end{array}$$

$$(4)\quad I = \underset{(3.13)}{967.3} + \underset{(1.33)}{8.02\left(\frac{\dot{P}}{P}\right)^*} \qquad \begin{array}{l} R^2 = 0.8714 \\ \text{D-W} = 1.73 \end{array}$$

$$(5)\quad I = \underset{(3.05)}{1072.2} + \underset{(0.41)}{0.015\Delta Y_{-2}} - \underset{(-1.86)}{12.61r_{-2}} \qquad \begin{array}{l} R^2 = 0.8842 \\ \text{D-W} = 1.60 \end{array}$$

$$(6)\quad I = \underset{(3.33)}{996.8} + \underset{(0.70)}{0.031\Delta Y_{-3}} - \underset{(-1.16)}{7.90r} - \underset{(-0.30)}{2.37r_{-1}} \qquad \begin{array}{l} R^2 = 0.8759 \\ \text{D-W} = 1.71 \end{array}$$

$$(7)\quad I = \underset{(2.72)}{1159.1} + \underset{(0.85)}{0.031\Delta Y_{-3}} - \underset{(-1.92)}{11.58r_{-2}} + \underset{(1.89)}{0.223CI} + \underset{(0.10)}{0.760\left(\frac{\dot{P}}{P}\right)^*} \qquad \begin{array}{l} R^2 = 0.9210 \\ \text{D-W} = 1.60 \end{array}$$

$$(8)\quad I = \underset{(2.31)}{893.4} + \underset{(2.89)}{0.286CI} + \underset{(1.15)}{11.74FI} \qquad \begin{array}{l} R^2 = 0.8992 \\ \text{D-W} = 1.55 \end{array}$$

$$(9)\quad I = \underset{(2.23)}{1007.2} + \underset{(2.23)}{0.289CI} - \underset{(-1.96)}{12.01r_{-2}} \quad \underset{(-0.43)}{2.95\left(\frac{\dot{P}}{P}\right)^*} + \underset{(1.07)}{12.06FI} \qquad \begin{array}{l} R^2 = 0.9239 \\ \text{D-W} = 1.41 \end{array}$$

$$(10)\quad \left(\frac{I}{Y}\right) = \underset{(2.18)}{7.16} + \underset{(2.32)}{0.147Z} + \underset{(3.55)}{0.358\left(\frac{CI}{Y}\right)} \qquad \begin{array}{l} R^2 = 0.5847 \\ \text{D-W} = 1.87 \end{array}$$

NOTE: Students t-statistics are enclosed in parentheses below each estimate.

-2, -3) indicates that the relevant variable has been lagged t periods. Note that the choice of Z as an additional proxy for financial intermediation was dictated by the desire to compare subsequent results with those of Christian and Pagoulatos who used a similar proxy.[238]

Equations (1) through (4) of Table 7-6 present results of regressing real investment on four of its determinants. It appears that real investment in Uganda is not significantly influenced by changes in income and the expected rate of change of prices. The coefficient estimates on $(DY)_{-3}$, $(DY)_{-2}$, $(DY)_{-1}$, and (DY) (not shown in the table) were all positive, as predicted, but statistically insignificant at the 90 per cent level. The coefficient estimate on (DP/P)* is positive in equations (4) and (7), but negative in equation (9). However, the estimate is statistically insignificant at the 90 per cent level. Thus, it appears that Uganda cannot finance capital formation by inflationary means.[239]

The real rate of interest (r) is, as predicted, inversely correlated with real investment. However, real investment appears to be determined by r_{-2}, rather than r, or r_{-1}. The estimated coefficients on r and r_{-1} (equation (6) of

---

[238] See Christian and Pagoulatos, "Domestic Financial Markets in Developing Countries;" and Christian and Pagoulatos, "Foreign Capital, Domestic Finance and Saving in Developing Countries."

[239] This finding is consistent with that of Thirlwall, who found that across countries, the evidence suggests that the relationship between inflation and expected inflation is weak. See A.P. Thirlwall, "Inflation and the Saving Ratio Across Countries," *Journal of Develpment Studies* 10 (January 1974): 167-68.

Table 7-6) were negative, but statistically insignificant even at the 90 per cent level. But the estimated coefficients on r_{-2} (equations (2), (5), (7), and (9) of Table 7-6) were negative and statistically signifficant at the 90 per cent level.

Real investment also appears to depend on real foreign capital inflows. The estimates on CI in equations (3), (7), and (9) of Table 7-6 are all positive and significant at the 95 per cent level. These results suggest that capital inflows enhance investment in Uganda. These results are consistent with the results based on the simultaneous equation models discussed below. Moreover, the finding is consistent with the real world in that many of the huge investments made in Uganda would not have been possible without capital inflows, or foreign "aid."

Lastly, financial intermediation in Uganda appears to influence the supply of loanable funds (saving) more than it influences their demand (investment). The estimated coefficient on FI in equations (8) and (9) have the predicted, positive signs. However, the estimates are insignificant at the 90 per cent level, although each one of them is greater than its standard error. There was no significant change in results when Z was used instead of the FI.

That financial intermediation is a significant constraint on the rate of capital formation, and, therefore, on the economic development of a country, is shown by results in equation (10) of Table 7-6. Note that this equation is the empirical equivalent of equation (5.14) of Chapter V. As the table shows, the estimated coefficient on Z is positive and statistically significant at the 95 per cent level; and that on CI/Y is also positive, but significant at the 99 per cent level. These results (equation (10) of Table 7-6) compare favourably with those of Christian and Pagoulatos. These researchers found the estimated coefficient on Z to be positive (with a range from 0.178 to 0. 307). Their estimates on CI/Y ranged from 0.181 to 0.410.[240]

In summary, it appears that real foreign capital inflows, interest rates, and financial development are some of the main determinants of real investment in Uganda. In this study, the estimated coefficient on CI ranged from 0.223 to 0.274, with a mean of 0.247; that on r_{-2} varied between -12.61 and -11.98, with a mean of -11.71; and that on Z was 0.147.

Finally, the results in Tables 7-1 through 7-6 indeed indicate that, as hypothesized, financial intermediation plays an important role in the saving-investment process in Uganda.

---

[240] See Christian and Pagoulatos, "Domestic Financial Markets in Developing Countries," Table 1, p. 83; and their "Foreign Capital, Domestic Finance, and Saving in Developing Countries," equation (2a), p. 83.

E. Single Equation Estimation: Some Other Issues Concerning Financial Intermediation and Development in Uganda

"Leakages"

As Blomstrom noted, capital has been flowing ("leaking") out of Uganda for a very long time.[241] The World Bank estimated that the outflow averaged Shs 100 million during the period 1954-1959;[242] and, as Newlyn pointed out,[243] the outflow continued up to the mid-sixties.

The "leakages" take the form of repatriation by expatriate firms and personnel of portions of their incomes (salaries, profits, and interest earned in Uganda). And as Blomstrom notes,

> among the Asians there was a sharp trend . . . to mortgage themselves to the hilt and secure overdrafts which were then sent overseas as protection against devaluation, exchange control, or political persecution. There were instances of men on small salaries sending up to four-fifths of their pay out of the country.[244]

Of course, many rich Africans in Uganda--especially after 1970--have been behaving likewise.[245]

---

[241] See Bruce A. Blomstrom, "Capital Flight in East Africa: The Case of Uganda," in Tom J. Farer, ed. *Financing African Development* (Cambridge: The M.I.T. Press, 1965), pp. 203-10.

[242] See the International Bank for Reconstruction and Development (*alias* the World Bank) *The Economic Development of Uganda* (Baltimore: The Johns Hopkins Press, 1962), p. 30.

[243] See Newlyn, *Finance for Development*.

[244] Blomstrom, "Capital Flight in East Africa," p. 204.

[245] For example, after the overthrow of Idi Amin in April 1979, it was discovered that many of his strong supporters had transferred from Uganda huge amounts of money which they had banked in Kenya and elsewhere outside Uganda.

The extent to which financial institutions have participated in, or enhanced, these "leakages" cannot be ascertained from the scanty data available. In fact, data on repatriations from such institutions as insurance companies, hire-purchase companies, building societies, and trust companies are either unavailable or inadequate. Nonetheless, one can conclude that at least before political independence in 1962, the institutions were siphoning funds from Uganda. For example, up to 1955, commercial banks were transferring funds from the country to their headquarters abroad, as Gershenberg observed.[246]

After 1960, the picture *vis-a-vis* banks changed, as Gershenberg points out.[247] The banks, as well as the East African Currency Board (EACB), now became net transmitters of funds from abroad to Uganda. Thus, in general, the banking system cannot be blamed for the capital flights that continued even after independence. The blame must, therefore, rest with political uncertainty, and related factors.

Monetization

Monetization, as noted earlier, is the extention of the use of money to the subsistence and barter sectors of the economy. Intermediation is expected to foster monetization.

In Uganda, the monetization ratio (MR)--the ratio of monetary to total product--increased from 67.4 per cent to

---

[246] See Gershenberg, "Banking in Uganda since Independence," p. 510.
[247] Ibid., pp. 511-12.

80.0 per cent between 1950 and 1968 and fell thereafter. (See Table 4-3 of Chapter IV.) In 1975, it was only 64.8 per cent, below its 1950 level. Consequently, for the entire period (1950-1975), the ratio registered a 2.6 per cent fall. During the same period, financial intermediation has generally been on the increase.

Hence, it appears as if financial intermediation and monetization in Uganda are inversely correlated. This is indeed what is indicated by our initial results. MR was regressed on the growth rate of real income (DY/Y) and the FI using the sample period 1950-1972. The results are as follows:

$$(7.4) \qquad MR = \underset{(42.89)}{75.4} - \underset{(-0.20)}{0.023}(DY/Y) - \underset{(-1.39)}{0.008}FI \qquad R^2 = 0.1029.$$

Note also that the MR appears to vary inversely with the (DY/Y).

However, an examination of the MR (Table 4-3) shows that the ratio had an upward trend until 1968, after which it had a downward trend. Taking this fact into account, a dummy variable for the period 1969-1972 was added to the right-hand variables in equation (7-4). The variable (DV) assumed a value of zero for the period before 1969, and a value of unity thereafter. The subsequent results were as follows:

$$(7.5) \qquad MR = 71.1 - 8.55DV + 0.003(DY/Y) + 0.0015FI$$
$$\qquad (33.26) \; (-2.80) \qquad (0.03) \qquad (1.56)$$
$$R^2 = 0.3973.$$

As equation (7.5) shows, financial intermediation and monetization appear to be positively related, as predicted. The estimated coefficient on the FI is statistically significant at the 90 per cent level. The MR also varies directly with the economy's growth rate (DY/Y). However, the estimate associated with the (DY/Y) is insignificant at the 90 per cent level.

Further, the estimated coefficient on DV is statistically significant at the 99 per cent level. This confirms the fact that there was a significant downward change in the trend of the monetization ratio after 1968.

Furthermore, note that the R^2 has risen from 10.3 per cent (equation (7.4)) to 39.7 per cent (equation (7.5)). However, it is still very low, implying that the right-hand variables still explain only about 40 per cent of the variation in the MR. In addition, the coefficient estimate on the FI is very small (about 0.15 per cent); and the intercept estimate is significant even at the 99.5 per cent level. All these factors imply that the explanatory variables have minimal influence on the dependent variable, MR. Moreover, when other proxies for financial intermediation (particularly, the Z and the FIIR, the financial intermediation ratio) were used instead of the FI, results (not shown here) revealed that the relationship between the

MR and financial intermediation in Uganda is very weak.

This apparently weak statistical relationship between financial intermediation and monetization stems from three reasons: (1) measurement error in the MR; (2) possibly, the failure of the proxies for financial intermediation to capture the direct and indirect effects of financial intermediation on the economy; and, (3) the swamping of the effectiveness of financial intermediaries by political and related factors. The size of the non-monetary sector is usually not accurately measured, as pointed out before. Hence, a mere improvement in the measurement technique for the sector's output will, *ceteris paribus*, result in a spurious fall in the monetization ratio.

Recent experience has shown that in certain circumstances, the effects of financial intermediation on development may be swamped. For, example, in Uganda, the Amin regime was characterized by serious shortages of essential commodities and rampant inflation, especially after 1972.[248] These two factors motivated people to rely more heavily on subsistence production: it became economically more expedient for individuals to devote some time to tending their own foodcrops, than for them to buy similar goods at exhorbitant prices. Consequently, the non-monetary sector's output increased at the expense of the output from the monetary sector. For instance, real output from the monetary sector declined from a level of Shs 5,097 million in 1970 to Shs 4,756 million in 1976, while the non-monetary sector's real product increased from Shs 2,187 million in 1970 to Shs 2,673 million in 1976.[249]

---

[248] See Table 4-1 of Chapter IV.

During such a period, the monetization ratio has to decline despite increased financial intermediation. The effects of financial intermediation on development are simply swamped by the political and economic uncertainty and instability. In a developing country like Uganda, the development process is often characterized by such instabilities. The monetization ratio will register upward and downward variations irrespective of the direction of growth of the financial superstructure. It is then not surprising that the statistical relationship between the MR and financial intermediation in Uganda is weak.

We now turn to simultaneous equation estimation.

F. Model I: A Simultaneous Equation Model of the Saving-Investment Process in Uganda

Table 7-7 presents regression results based on Model I discussed in the previous chapter. The endogenous variables are:

S/Y = the saving rate (APS);
DY/Y = the growth rate of real income;

---

[249] See Bank of Uganda, *A Review of the Uganda Economy*, p. 4.

TABLE 7-7

ECONOMETRIC RESULTS OF MODEL I, 1950-1972

$$\begin{aligned}(1)\quad \frac{S}{Y} = {} & \underset{(-0.37)}{-6.25} + \underset{(1.28)}{0.252}\left(\frac{\Delta Y}{Y}\right) + \underset{(0.69)}{0.0104}\left(\frac{Y}{N}\right) + \underset{(1.07)}{0.641FI} \\ & - \underset{(-1.57)}{0.0093CI} + \underset{(0.07)}{0.011}\left(\frac{S}{Y}\right)_{-1} + \underset{(0.27)}{0.066b} \qquad R^2 = 0.8501\end{aligned}$$

$$\begin{aligned}(1a)\quad \frac{S}{Y} = {} & \underset{(-0.40)}{-6.45} + \underset{(1.34)}{0.248}\left(\frac{\Delta Y}{Y}\right) + \underset{(0.71)}{0.010}\left(\frac{Y}{N}\right) + \underset{(1.46)}{0.662FI} - \underset{(-1.74)}{0.0092CI} \\ & + \underset{(0.29)}{0.066b} \qquad R^2 = 0.8496\end{aligned}$$

$$(2)\quad \frac{\Delta Y}{Y} = \underset{(-2.85)}{-14.97} + \underset{(4.66)}{0.768}\left(\frac{S}{Y}\right) + \underset{(1.55)}{0.371FI} + \underset{(1.59)}{0.0091CI} \qquad R^2 = 0.6849$$

$$(3)\quad FI = \underset{(4.60)}{11.13} + \underset{(3.35)}{0.394}\left(\frac{S}{Y}\right) + \underset{(1.73)}{0.186}\left(\frac{S}{Y}\right)_{-1} + \underset{(0.76)}{0.034}\left(\frac{\Delta Y}{Y}\right)_{-1} \qquad R^2 = 0.7881$$

$$(4)\quad \frac{Y}{N} = \underset{(11.70)}{668.20} + \underset{(1.64)}{1.09}\left(\frac{\Delta Y}{Y}\right) - \underset{(-5.34)}{3.74DEN} + \underset{(7.74)}{3.35EN} + \underset{(1.37)}{0.516TLPR} \qquad R^2 = 0.8778$$

$$\begin{aligned}(5)\quad \frac{I}{Y} = {} & \underset{(3.16)}{10.39} + \underset{(4.24)}{0.476FI} + \underset{(0.69)}{0.025}\left(\frac{\Delta Y}{Y}\right)_{-1} + \underset{(2.35)}{0.006CI} + \underset{(0.47)}{0.046b} \\ & - \underset{(-4.25)}{0.720r} \qquad R^2 = 0.8897\end{aligned}$$

$$(6)\quad \frac{S}{Y} = \frac{I}{Y}$$

NOTE: The t-statistics are enclosed in parentheses below coefficient estimates.

FI = the degree or level of financial intermediation;[250]

Y/N = real per capita income;

I/Y = the investment rate (API);

and the predetermined variables other than the dummy for the constant term are:

CI = real foreign capital inflows;

r = the real return on capital;[251]

DEN = the population density;[252]

EN = the per capita commercial energy consumption in kilogrammes per capita coal equivalents;[253]

TLPR = the total labour participation rate (the ratio of total labour employment to total population);[254]

---

[250] Following earlier discussions of the model, the ratio of M_3 to income (that is, M_3/Y) as the proxy for the degree of financial intermediation. M_3 was defined as the sum of currency in circulation, demand deposits, savings deposits, time deposits at commercial banks, and similar deposits at near-banks (in this case the Post Office Savings Bank).

[251] From a production function, $r = dY/dK$, where K is the capital stock. The r used in the regressions here was approximated by dividing changes in income (DY) by changes in capital (DK = I).

[252] Uganda is about 241,000 square kilometres in area, of which land occupies about 197,000 square kilometres and open water and swamps occupy the remaining area. Of the land area, arable land and urban areas occupy 165,208 square kilometres and 698 square kilometres, respectively. The denominator of the DEN is the sum of the arable land and the urban areas.

[253] The source of the data on the EN was the U.N., Department of Economic and Social Affairs, *World Energy Supplies, 1950-1974*, Statistical Papers, Series J, No. 19, New York, 1976; and the U.N., Department of Economic and Social Affairs, *World Energy Supplies, 1977*, Statistical Papers, Series J, No. 21, New York, 1978.

[254] The sources for the data used to estimate this variable are: 1. Uganda Government, *Statistical Abstracts*, various issues; 2. U.N., Department of Economic and Social Affairs, *Compendium of Social Statistics*, Statistical Papers, Series K, No. 3, New York, 1967; and 3. International Labour Organization (ILO), *Year Book of Labour Statistics*,

b = the real borrowing rate;[255]

$(S/Y)_{-1}$ = the lagged saving rate; and,

$(DY/Y)_{-1}$ = the lagged rate of growth of real income.

The rationale of the structural model has already been discussed and, therefore, will not be repeated here. Instead, a discussion of the results follows.

The Saving Rate Equation

As equations (1) and (1a) of Table 7-7 show, all the coefficient estimates have the predicted signs. The estimates are also greater than their standard errors, except those associated with the variables Y/N, $(S/Y)_{-1}$, and b.

The $(S/Y)_{-1}$ and the FI variables were found to be highly correlated, with a simple correlation coefficient of 0.8467. This explains the apparent statistical insignificance of the estimate on the lagged saving rate variable in equation (1). Equation (1a) is the result of dropping the collinear $(S/Y)_{-1}$ from equation (1). As the table shows the exclusion of the variable resulted in higher t-statistics for all estimates in equation (1a) in comparison with the counterpart equation (1).

Thus, the saving rate in Uganda appears to depend on the rate of growth of real income, real foreign capital inflows, and the degree of financial development. This compares favourably with the results based on single

---

[254] (cont'd)International Labour Office, Geneva, various issues.

[255] The b used was approximated as the simple average of (the banks' and near-banks') lending rates.

equation models and the results of studies of other developing countries.[256] However, according to the present study, per capita income does not appear to be one of the major determinants of the saving rate. This result is contrary to findings by, amomg others, Fry, Gupta, and Thirlwall, relating to other developing countries.[257] The apparent insignificance of the Y/N in this study can be explained by the presence of multicollinearity. The simple correlation coefficients between the Y/N and each one of the variables FI, CI, $(S/Y)_{-1}$, and DY/Y were -0.5488, 0.4146, -0.4958, and 0.3654, respectively.

The Rate of Growth of Real Income Equation

As equation (2) of Table 7-7 shows, the saving rate, the degree of financial intermediation, and real foreign capital inflows are all important determinants of the real income growth rate. The estimated coefficients associated with all these variables have the expected signs, and they are all statistically significant at the 90 per cent level.

---

[256] See, for example, Gupta, "Foreign Capital Inflows, Dependency Burden, and Saving Rates in Developing Countries," equations (10) and (10a), pp. 363; Fry, "Money and Capital or Financial Deepening in Economic Development," Table 1, p. 468; and Thirlwall, "Inflation and the Saving Ratio Across Countries," pp. 164-67.

[257] In their studies, quoted in the previous footnote, Fry, Gupta, and Thirlwall found that per capita income is an important determinant of the saving rate. However, it should be noted that Fry's study was based on a sample of only 10 (time series) observations, and Gupta's and Thirlwall's studies were based on cross-section data. Fry's sample is rather too small. And, as Mikesell and Zinser point out, "great caution must be exercised in evaluating the results of cross-sectional analysis of saving behavior based on aggregate saving data for a number of developing countries." This is because differences exist across countries in the methodologies of data derivation, in data reliability, and in data inconsistency. Such problems tend to be more pronounced across countries than within countries. Thus, results from the three studies may not be strictly comparable. See Mikesell and Zinser, "The Nature of the Saving Function in Developing Countries."

As was pointed out earlier, the real income growth rate depends on two main factors: technological improvement or development, and the rates of growth of capital and labour. It may be noted that under the assumption of the labour-surplus school (an assumption likely to obtain in many developing countries), the growth rate of the population (or the labour force) will affect minimally the growth rate of real income.

Assuming that Uganda is a labour-surplus country, it follows that its income growth rate will depend mainly on the growth rate of capital and on technological progress. The three variables included in equation (2) of Table 7-7 were deemed to capture adequately the effects of changes in capital and technology on the growth rate of income. The S/Y and CI account for the effect of the growth in the capital stock and the FI and, again, CI take care of changes in efficiency or technology.[258] This explains why all the variables are statistically significant in their explanation of the total variation in the real income growth rate.

Insofar as the CI and S/Y, (= I/Y, *ex post*) are significant determinants of the DY/Y, the results here are consistent with results from other studies of developing countries. For example, Gupta [259] and Galbis[260] also found real capital inflows and the saving rate to be significant determinants of the rate of growth of real income in forty developing countries and in Latin America; and Christian and Pagoulatos found financial development to be a significant determinant of the investment rate, and, therefore, the real income growth rate. [261]

---

[258] Capital inflows usually bring with them new and more efficient technologies from outside the developing country. Financial intermediation, for its part, enhances efficiency especially in the allocation of loanable funds among competing uses,

The Financial Intermediation Equation

In reference to equation (3) of Table 7-7, it appears that, in Uganda, the degree of financial intermediation depends on the saving rate and the lagged saving rate. The lagged growth rate of real income appears not to affect directly the degree of financial intermediation. The estimates on S/Y and $(S/Y)_{-1}$ are statistically significant at the 99 per cent level and at the 90 per cent level, respectively. The estimate on $(DY/Y)_{-1}$ has the predicted sign, but is statistically insignificant even at the 90 per cent level. When the $(DY/Y)_{-1}$ was replaced by the (DY/Y), the estimated coefficient on the (DY/Y) (not shown in the table) was also statistically insignificant at the 90 per cent level.

---

[259] Gupta, "Foreign Capital Inflows, the Dependency Burden, and Saving Rates in Developing Countries", equations (11) and (11a), pp. 363-64.

[260] Galbis, "Money, Investment, and Growth in Latin America, 1961-1973," *Economic Development and Cultural Change* 27 (April 1979), equations (3a) and (3b), p.440.

[261] See Christian and Pagoulatos, "Domestic Financial Markets in Developing Countries," Table 1, p.83; and their "Financial Capital, Domestic Finance, and Saving in Developing Countries," equation (2a), p.83.

Noting that the estimate on FI in equation (5) of Table 7-7 is statistically significant at the 99 per cent level, it clearly appears that financial intermediation in Uganda is both supply-leading and demand-following, to use Patrick's terminology[262] Results from equation (3) of the table support the demand-following phenomenon that the setting up of new financial intermediaries as well as financial deepening depend on the availability of loanable, "unintermediated" funds. Results presented in equations (1), (1a), (2), and (5) support the supply-leading phenomenon that financial intermediaries enhance saving and investment. This support for both phenomena gives extra stress to the importance of financial intermediation in the saving-investment process in Uganda.

The Real Per Capita Income Equation

As mentioned earlier, this equation follows Gupta's specification.[263] The per capita commercial energy consumption (EN) is a proxy for the per capita fixed capital; and the population density (DEN) measures the pressure of the population on non-capital resources.

As with the real income growth rate equation, the inclusion of the right-hand variables in equation (4) of

---

[262] See Patrick, "Financial Development and Economic Growth in Underdeveloped Countries," pp. 174-76. Also see U Tun Wai, *Financial Intermediaries and National Savings in Developing Countries*, pp. 105-108.

[263] See Gupta, "Foreign Capital Inflows, Dependency Burden, and Saving Rates in Developing Countries," p. 364.

Table 7-7 can be rationalized from the production function. Per capita income will depend on the EN, the TLPR, and the DEN. It will also depend on the growth rate of the economy (DY/Y), which encompasses the growth rates of the variables.

According to equation (4) of the table, all the variables included are important. The estimated coefficients on EN and DEN have the predicted signs and are statistically significant at the 99 per cent level. The estimates associated with the variables DY/Y and TLPR also have the expected signs, but are statistically significant at the 90 per cent level.

Again, the present results compare well with Gupta's. However, the estimated coefficient on the DEN variable in Gupta's study was statistically insignificant even at the 90 per cent level, although it had the expected sign.[264] In the present study, the estimate on DEN is very significant, as pointed out above.

The Investment Rate Equation

The main determinants of the average propensity to invest (API) in Uganda appear to be the real rate of return on capital (r), the degree of financial intermediation (FI), and real foreign capital inflows (CI). As equation (5) of Table 7-7 shows, the estimates associated with the variables are all statistically significant at the 99 per cent level. The estimates on FI and CI have the predicted signs, and that on r has a negative sign.

---

[264] Ibid., equation (12), p. 364.

According to the McKinnon-Shaw thesis, the coefficient on r should be positive for very low (possibly, negative) values of r in developing countries. This is because money and physical capital are complements rather than substitutes. Hence, a rise (fall) in r leads to an increase (a decrease) in the investment rate and the demand for money (widely defined). Further, a rise (fall) in the investment rate (I/Y) leads to a rise (fall) in the demand for real balances. Thus, a change in r should lead to a change in the same direction in the investment rate and the demand for real balances according to the complementarity thesis. This thesis was discussed in the previous chapter, and its validity or falsehood in Uganda's case will be the subject of the next section.

Briefly, the phenomenon of a positive relationship between the rate of interest and the investment rate (and the demand for real balances) is referred to as the "conduit" effect as opposed to the "competing-asset" effect associated with Keynesian and neoclassical monetary theories.[265] Note that for high rates of interest, the "competing-asset" effect dominates the "conduit" effect so that $d(I/Y)/dr < 0$. Given that the average r value in Uganda's case was 8.00 per cent, this explains why the estimated coefficient on r is negative.

The $(DY/Y)_{-1}$ variable was included in the equation to capture accelerator effects, while b was included in the equation to take care of the opportunity cost of capital in that the higher (lower) b is, the higher (lower) is the cost of capital. The estimates associated with both the (DY/Y) and the b are statistically insignificant at the 90 per cent level. The estimated coefficient on the $(DY/Y)_{-1}$ has the predicted positive sign, but that on the b has a positive sign, contrary to *a priori* anticipations.

---

[265] See McKinnon, *Money and Capital in Economic Development*, pp. 57-66.

In regard to the significance of the FI and CI variables in determining the I/Y, the results reported here compare favourably with those of Christian and Pagoulatos, although Christian and Pagoulatos used the ratio of currency to M_2 (currency in circulation plus demand, savings, and time deposits at commercial banks) as the proxy for financial intermediation. They also used CI/Y rather than the CI used here.[266] Further, in regard to the $(DY/Y)_{-1}$ variable, the results from the present study are consistent with those from studies by Thirlwall [267] and Leff and Sato[268]

Finally, it should be noted that, unlike the current study, the studies cited here all did not include either the real rate of return on capital (r) or the borrowing rate (b) among the predetermined or exogenous variables of their models. Hence, the present study is unique at least in this respect.

---

[266] See Christian and Pagoulatos, *op. cit*.

[267] Thirlwall, "Inflation and the Savings Ratio Across Countries," p. 167.

[268] Leff and Sato, "A Simultaneous Equation Model of Savings in Developing Countries," Table A1, p.1217. This statement refers specifically to their results concerning investment in Israel, Phillipines, and Taiwan.

The Reduced Form of the Model

To get an idea of the total (direct and indirect) impact of each of the predetermined variables on the endogenous variables, the reduced form of the simultaneous equation model of Table 7-7 was derived. The subsequent reduced form results are presented in Table 7-8.

As the table shows, it is evident that the negative impact of real capital inflows on the saving rate and the positive impact of capital inflows on the investment rate have been considerably reduced. The positive effect of the CI on the rate of growth of real income has also been reduced; in fact, it is now negative.[269] That the impact of capital inflows is less pronounced in the reduced-form version than in the structural form of the model bears out Gupta's finding.[270]

However, the impacts of the $(S/Y)_{-1}$, the DEN, the EN, the TLPR, and the $(DY/Y)_{-1}$ variables on the five endogenous variables have been enhanced in the reduced-form version of the model. The effect of the real return on capital (r) has not changed at all, while that of b has decreased. In the reduced-form, the b now varies inversely with the I/Y and directly with the S/Y, as anticipated.

---

[269] These statements (and subsequent statements) are made after comparing structural parameter estimates (Table 7-7) with corresponding reduced-form parameter estimates (Table 7-8).

[270] Gupta, "Foreign Capital Inflows, Dependency Burden, and Saving Rates in Developing Countries," Table 1, p. 369.

TABLE 7-8

THE REDUCED-FORM OF THE EMPIRICAL MODEL I

Endogenous Variables	Predetermined Variables								
	Constant	CI	$(\frac{S}{Y})_{-1}$	r	DEN	EN	$(\frac{\Delta Y}{Y})_{-1}$	b	TLPR
$\frac{S}{Y}$	9.78	-0.0014	0.294	0.0	-0.076	0.069	0.445	0.131	0.0106
$\frac{\Delta Y}{Y}$	-1.91	-0.0034	0.337	0.0	-0.070	0.063	0.519	0.119	0.0097
FI	14.98	-0.0054	0.301	0.0	-0.030	0.027	0.480	0.051	0.0042
$\frac{Y}{N}$	664.80	-0.0036	0.367	0.0	-3.804	3.409	0.565	0.130	0.5253
$\frac{I}{Y}$	17.52	0.0039	0.143	-0.720	-0.014	0.013	0.203	-0.022	0.0020

NOTE: These estimates are computed from the estimates given in Table 7-7.

That in simultaneous-equation estimation one can assess the direct and indirect effects of predetermined variables on endogenous variables while in single-equation estimation only the direct effects can be analysed argues for simultaneous-equation estimation whenever applicable and possible.

Elasticity Multipliers

It is well known that the magnitudes of the structural parameters and the reduced-form coefficients (that is, "impact multipliers") are dependent on the units of measurement of the variables concerned. This fact poses a difficulty in case one is interested in comparing different impact multipliers. Hence, following Gupta,[271] elasticity multipliers were computed, using the impact multipliers of Table 7-8, and arithmetic means of the endogenous and predetermined variables in the model. The resultant elasticity multipliers (free of units of measurement) are presented in Table 7-9.

As Table 7-10 shows, all the elasticity multipliers, except $\{d(DY/Y)/d(S/Y)_{-1}\}\{(S/Y)_{-1}/(DY/Y)\}$ --that is, the elasticity of the rate of growth of real income with respect to the lagged saving rate--are less than unity in absolute values. Thus, the endogenous variables are generally inelastic with respect to the predetermined variables in the model.

---

[271] Ibid., Table 2, p. 371.

TABLE 7-9

ELASTICITY MULTIPLIERS BASED ON THE REDUCED-FORM OF MODEL I[1]

Endogenous Variables	Predetermined Variables							
	CI	$(\frac{S}{Y})_{-1}$	r	DEN	EN	$(\frac{\Delta Y}{Y})_{-1}$	b	TLPR
$\frac{S}{Y}$	0.0064	0.312	0.0	-0.214	0.165	0.124	0.029	0.069
$\frac{\Delta Y}{Y}$	0.0628	1.442	0.0	-0.793	0.606	0.582	0.106	0.255
FI	0.0198	0.256	0.0	-0.068	0.052	0.107	0.090	0.022
$\frac{Y}{N}$	0.0	0.010	0.0	-0.269	0.205	0.004	0.001	0.086
$\frac{I}{Y}$	0.0209	0.177	-0.396	-0.046	0.036	0.066	-0.006	0.015

---

[1] The elasticity multipliers were computed using the impact multipliers in Table 7-8 and the means of the variables under consideration.

An examination of the first row of Table 7-10 reveals that the (S/Y) , the DEN, and the EN variables have the greatest impact on the saving rate in that order. Other than the previous period's saving rate, the EN exerts the greatest positive impact on the saving rate, followed by the one-period lagged real income growth rate. As expected, the population pressure on noncapital resources (as proxied by the DEN) has a considerable, negative impact on the saving rate. Thus, policies aimed at reducing the growth rate of the population and those directed towards raising capital per capita in Uganda appear to be in the right direction.

The growth rate of real income (DY/Y) is elastic with respect to the one-period lagged saving rate. The lagged saving rate has the greatest positive effect on the DY/Y among the predetermined variables. Other variables with considerable positive impacts on the DY/Y include the proxy for the fixed capital per capita (EN), the one-period lagged real income growth rate, and the total labour participation rate, in that order. Again, the DEN variable has a large negative impact on the endogenous variable (DY/Y).

In regard to financial intermediation, the lagged saving rate has the greatest positive impact on it, followed by the lagged real income growth rate, as Table 7-10 shows. Further, the DEN appears to exert a relatively weak, but negative, impact on the degree of financial intermediation in Uganda.

Fixed capital per capita and the total labour participation rate appear to exert the greatest positive impact on real per capita income in Uganda. In addition, the DEN variable has a remarkable, negative impact on the per capita income as the fourth row of Table 7-10 shows.

Finally, the lagged saving rate appears to have the greatest positive impact on the investment rate in Uganda, as evident from the fifth row of Table 7-10. The real rate of return on capital appears to exert the greatest negative impact on the investment rate.

G. Model II: A Simultaneous Equation Model Embodying the Complementarity Hypothesis

As explained in the previous chapter, this simultaneous equation model aims, among other things, at testing the validity of the McKinnon complementarity thesis. By this thesis, the demand for money and investment vary directly with the return on capital. The demand for real balances also varies directly with the investment rate, but ambiguously with the real deposit rate. When the real deposit rate is negative (positive) the demand for real balances and the investment rate vary directly (inversely) with each other. Note that complementarity, as explained earlier, works both ways. Money is regarded as a complement to physical capital, rather than its substitute.[272]

---

[272] See McKinnon, *Money and Capital in Economic Development*, pp. 55-67, or the first section of Chapter VI above.

The theoretical underpinnings of the present model were discussed in the previous chapter. In this section, regression results of estimating the model are presented.

The empirical d (the real deposit rate) was obtained by subtracting the rate of expected inflation, (DP/P)* (a three-year simple moving average of the rate of change of prices) from the average nominal rate of interest on deposits. Further, a wider definition of money is usually preferred to the narrow definition, M_1 (that is, the sum of the currency in circulation and demand deposits). Here, M_2 (that is, M_1 plus saving and time deposits at commercial banks) is used. The choice of M_2, rather than M_3 (that is, M_2 plus savings and time deposits at near-banks) was dictated by the fact that researchers like Yoo, Galbis, and Fry[273] used the same definition of money in their studies. As a result, the current regression results concerning especially the demand for real balances are comparable to theirs.

Table 7-10 presents regression results of Model II. The endogenous variables are, namely, real investment (I), real balances demanded (M^1/P), real income (Y), and real national saving (S); and the predetermined variables other than the dummy for the constant term are: the lagged money supply, $(M^0/P)_{-1} = (M/P)_{-1} = (M^1/P)_{-1}$, the real return on

---

[273] See Yoo, "The Role of Money as a Conduit of Savings and Investment in the UDCs;" Galbis, "Money, Investmet, and Growth in Latin America, 1961-1973;" and Fry, "Money and Capital or Financial Deepening in Economic Development?"

TABLE 7-10

ECONOMETRIC RESULTS OF MODEL II, 1950-1972

(1) $$I = \underset{(4.31)}{0.0933Y} + \underset{(4.50)}{0.531}\left(\frac{M^S}{P}\right) - \underset{(-6.56)}{36.48r} + \underset{(1.34)}{6.95d}$$

$R^2 = 0.9467$

(2) $$\frac{M^D}{P} = \underset{(3.93)}{0.116Y} + \underset{(2.15)}{13.28}\left(\frac{I}{Y}\right) + \underset{(1.67)}{0.360}\left(\frac{M^S}{P}\right)_{-1} - \underset{(-3.76)}{25.20r} + \underset{(2.20)}{10.75d}$$

$R^2 = 0.9255$

(3) $$Y = \underset{(1.67)}{492.23} + \underset{(1.31)}{0.646}\left(\frac{M^D}{P}\right) + \underset{(0.25)}{0.120I_{-1}} + \underset{(6.60)}{69.11DEN} + \underset{(3.35)}{3.15TEN}$$

$R^2 = 0.9894$

(4) $$S = \underset{(2.09)}{281.09} + \underset{(0.55)}{0.0202Y} + \underset{(2.16)}{0.431}\left(\frac{M^S}{P}\right)_{-1} + \underset{(5.99)}{18.83d}$$

$R^2 = 0.6464$

(5) $M^S = \overline{M}$

(6) $I = S$

(7) $M^D = M^S$

NOTE: Students t-statistics are enclosed in parentheses below estimates.

capital (r), the real deposit rate (d),[274] lagged real investment (I_{-1}), DEN, and the proxy for the total fixed capital formation (TEN).

An examination of equation (1) of Table 7-10 shows that the estimated coefficients on both income and the lagged money supply variables have the predicted signs and are statistically significant at the at the 99 per cent level. The estimated coefficient on d has a positive sign and is statistically significant at the 90 per cent level. That this estimate is positive and significant implies that in Uganda the "conduit" effect of money appears to dominate the "competing-asset" effect.[275]

The estimate associated with r in equation (1) of Table 7-10 is statistically significant at the 99 per cent level, and has a negative sign. Hence, it appears that as r increases (decreases), real investment in Uganda decreases (increases). This finding is consistent with the traditional (Keynesian or neoclassical) investment theory. Given that the r values in the sample were all positive, the finding is also in agreement with McKinnon's complemantarity hypothesis as discussed in the previous chapter.[276]

---

[274] The d employed in the regressions is the simple average of the rate of interest banks and near-banks pay on all types of deposits and on currency in circulation.

[275] This is not surprising in view of the fact that most of the values of d in the sample were negative. The average value for the d was -1.45 per cent. At relatively low returns (d) to real balances, the "conduit" effect is dominant so that I and d vary directly with each other; and at relatively high values of d, the "competing-asset" effect is dominant such that I varies inversely with the d. See Figures 6-1 and 6-2 of Chapter VI above.

In general. the results concerning the aggregate investment function compare favourably with Yoo's results. For example, in his study, the estimated coefficient on Y in Taiwan's case was 0.121 and that on the lagged money supply variable was 0.546; and both of these estimates were significant at the 95 per cent level.[277]

The results concerning the demand for real balances in Uganda (equation (2) of Table 7-10) also bear out the McKinnon thesis. The estimated coefficients on Y, I/Y, $(M^o/P)_{-1}$, and d all have the expected signs. The estimates on Y and r are statistically significant at the 99 per cent level, and that on the lagged money supply variable is significant at the 90 per cent level. Again, the estimate on r is negative as in the investment equation.

The results reported in equation (2) of Table 7-10 are consistent with results reported by Galbis, Brillembourg and Fry.[278]

Next, according to results presented in equation (3) of Table 7-10, the DEN, the TEN, and the M^o/P appear to be the main determinants of real income in Uganda. The estimates associated with the DEN and the TEN are statistically significant at the 99 per cent level; and the estimated

---

[276] The r had an average value of 8.00 in this sample.

[277] See Yoo, "The Role of Money as a Conduit for Savings and Investment in the UDCs," Table 1, p. 524.

[278] See Galbis, "Money, Investment, and Growth in Latin America,1961-1973," Table 2, pp. 431-32; Brillembourg, "The Role of Savings in Flow Demand for Money," Table 1, p. 289; and Fry, "Money and Capital or Financial Deepening in Economic Development," equation (17), p. 473.

coefficient on the M'/P is significant at the 90 per cent level. The one-period lagged investment and the M'/P variables were found to be highly collinear: the simple correlation coefficient between them was 0.9134. This explains the apparent statistical insignificance of the estimated coefficient on the lagged I, and the relatively low t-statistic of the estimate associated with the variable M'/P.

All the estimates in equation (3) of Table 7-10, except that associated with the DEN, have the predicted signs. Apart from the problem of multicollinearity, the change in the sign of the estimate on the DEN may be explained by differences in the rates of growth of real income and population. From Table 7-7 above, $d(Y/N)/dDEN < 0$, and from Table 7-10, $dY/dDEN > 0$. This implies that a rise (fall) in the DEN leads to a rise (fall) in Y, but to a fall (rise) in the Y/N. This is only possible if the population growth rate is higher than the real income growth rate.

In Uganda's case, the population growth rate exceeded the real income growth rate for only about a half of the period under study.[279] Hence, for at least a half of the sample period, one cannot justify this change in sign on the basis of differences in the rates of growth. Other than multicollinearity, the only other explanation for the reversal of the sign of the coefficient on the DEN, is that, as indicated before, the DEN is a poor measure of the pressure of the population on non-capital resources in this case.

---

[279] See Table 2-3 of Chapter II.

Finally, in reference to equation (4) of Table 7-10, it is clear that the estimated coefficient on the lagged money supply variable and that on d have the predicted signs. They are also significant at the 95 and 99 per cent levels, respectively. The estimate on Y has the expected sign, but is statistically insignificant at the 90 per cent level. The apparent insignificance of this estimate may be due to the problem of multicollinearity. The simple correlation coefficient between Y and the lagged money supply variable was found to be 0.7889.

Originally, Y_{-1} had been included among the predetermined variables in equation (4) of Table 7-10, in accordance with Yoo's specification.[280] However, it was found that inclusion of the lagged Y led to poor results due to multicollinearity. The simple correlation coefficient between Y and lagged Y was found to be 0.9818, and that between Y_{-1} and the $(M^o/P)_{-1}$ was 0.7694. Consequently, the lagged Y was excluded from subsequent regressions.

Impact Multipliers

The reduced-form of the structural model in Table 7-10 is presented in Table 7-11.

An examination of the results in Table 7-11 *vis-a-vis* those in Table 7-10 above shows that the impacts of r, d,

---

[280] See Yoo, "The Role of Money as a Conduit of Savings and Investment in the UDCs," pp. 522-24.

TABLE 7-11

THE REDUCED-FORM OF THE EMPIRICAL MODEL II

Endogenous	Predetermined Variables						
Variables	Constant	$(\frac{M^S}{P})_{-1}$	r	d	I_{-1}	DEN	TEN
I	49.66	0.9588	-65.92	12.95	0.0121	6.97	0.3184
$\frac{M^D}{P}$	61.71	0.3909	-27.34	11.64	0.0151	8.66	0.3947
Y	532.09	0.2525	-17.66	7.52	0.1301	74.71	3.41
S	388.54	0.0051	- 0.3566	18.98	0.0263	15.09	0.6882

NOTE: Computed from estimates in Table 7-10.

DEN, TEN, and I on the relevant endogenous variables are higher in the reduced-form version than in the structural model. This means that when both direct and indirect effects of these predetermined variables are taken into account, the variables have greater impacts than when only the direct impacts are considered. However, this is not true for the lagged M^o/P variable. In comparison to the structural model, the total impact of the lagged M^o/P is lower in the case of the saving function but higher in regard to the remaining endogenous variables when both the direct and indirect effects are taken into account.

Elasticity Multipliers

Table 7-12 presents the elasticity multipliers consistent with the estimated model of Table 7-10.

As Table 7-12 shows, the lagged M^o/P has the greatest positive impact on real investment. The return (r) on capital exerts a greater negative impact on real investment in Uganda than the real deposit rate (d). Further, in regard to the demand for real balances, the DEN variable appears to have the greatest positive impact on it, while r has a greater negative impact on the variable than the d. Furthermore, in reference to the I and S functions (Table 7-12, rows 3 and 4, respectively), the DEN has the greatest positive impact.

Finally, it is evident from Table 7-12 that all the elasticity multipliers are less than unity in absolute terms, except $\{dI/d(M^o/P)_{-1}\}\{(M^o/P)_{-1}/I\}$, which is greater

TABLE 7-12

ELASTICITY MULTIPLIERS BASED ON THE REDUCED-FORM OF MODEL II[1]

Endogenous Variables	Predetermined Variables					
	$(\frac{M^S}{P})_{-1}$	r	d	I_{-1}	DEN	TEN
I	1.2671	-0.7649	-0.0270	0.0118	0.4836	0.0187
$\frac{M^D}{P}$	0.3790	-0.2327	-0.0178	0.0108	0.4409	0.0171
Y	0.0426	-0.0261	-0.0020	0.0161	0.6607	0.0255
S	0.0061	-0.0037	-0.355	0.0229	0.9400	0.0364

[1] The elasticity multipliers were calculated by using the impact multipliers (reduced-form coefficients estimates) and arithmetic means of the variables concerned.

than one. Thus, in general, the demand for (supply of) real investment, real balances, real income, and real savings in Uganda tend to be inelastic with respect to the interest rates and the remaining predetermined variables in the current model.

In summary, the evidence suggests that the McKinnon thesis (the complementarity hypothesis) is applicable to Uganda, at least for the period under consideration.

It is worth noting that the regression results of Models I and II generally support the conclusions based on results from single equation models. A fuller comparison of the single equation with the simultaneous equation results is undertaken in the following section.

H. Comparing Single Equation with Simultaneous Equation Results

The results in Table 7-1 through Table 7-7 (results based on single equation models) and those in Table 7-7 through Table 7-12 (simultaneous equation results) are generally similar in two respects. On the one hand, all the results show that the elasticity of real saving (or the saving rate) with respect to real income or to financial intermediation (Tables 7-1, 7-9, and 7-12) is less than unity. Thus, the evidence suggests that saving in Uganda is inelastic with respect to income and with respect to financial intermediation. As noted earlier, saving is also inelastic with respect to other variables, such as foreign capital inflows and the rate of interest.

On the other hand, both methods of estimation appear to be generally similar in discriminating among variables on the basis of statistical significance. If a variable is insignificant in its explanation of the variation in the dependent variable in a single equation model, it will generally also turn out to be insignificant in explaining the variation in the variable when a comparable simultaneous equation model is used.

However, the differences between the results appear to be more pronounced than the similarities. Table 7-13 brings out the major differences, especially in regard to the variable of interest, financial intermediation. As the table shows, the coefficients appear to be underestimated when single equation estimation is used as compared to when simultaneous equation estimation is used. For example, the coefficient estimates associated with the proxy for financial intermediation in Table 7-13 are smaller under single equation estimation (equations 1 through 4) than under simultaneous equation estimation (equations 5 through 8). In addition, it is only under simultaneous equation estimation that one can account for the direct and indirect impacts of the truly exogenous (and lagged) variables on the left-hand variable(s). This is done by obtaining the reduced-form version of any given structural model, as pointed out before. Single equation estimation takes

TABLE 7-13

A COMPARISON OF SINGLE EQUATION WITH SIMULTANEOUS EQUATION RESULTS

MODEL TYPE	Left-hand Variable	Right-hand Variables						
		CONSTANT	FI	DY/Y	CI	b or d	REDUCED FORM b or d	REDUCED FORM CI
SINGLE EQUATION MODELS	1. $\frac{S}{Y}$	16.13 (1.01)	0.437 (1.78)	0.043 (0.45	-0.016 (-3.80)	-0.087 (-0.50)	--	--
	2. $\frac{I}{Y}$	17.70 (8.67)	0.189 (2.67)	-0.0093 (-0.22	0.864 (6.99)	-0.072 (-0.96)	--	--
	3. S	-1203.4 (-1.17)	0.154 (2.26)	--	--	--	--	--
	4. I	893.4 (2.31)	0.117 (1.15)	--	0.286 (2.89)	--	--	--
SIMULTANEOUS EQUATION MODELS	5. $\frac{S}{Y}$	-6.45 (0.40)	0.662 (1.46)	0.248 (1.34)	-0.0092 (-1.74)	0.066 (0.29)	0.131	-0.0014
	6. $\frac{I}{Y}$	10.39 (3.16)	0.476 (4.24)	0.025 (0.69)	0.006 (2.35)	0.046 (0.47)	-0.022	0.0039
	7. S	281.09 (2.09)	0.431 (2.16)	--	--	18.33 (d) (5.99)	18.98	--
	8. I	--	0.531 (4.50)	--	--	6.95 (d) (1.34)	12.95	--

SOURCES: Tables 7-1 through 7-11, except for equations 1 and 2 which do appear here only.

account of only the direct impacts. As observed earlier, it is only when both impacts are considered that the subsequent conclusions are fully justified. For example, the impacts of capital inflows (CI) on both the saving and investment rates are reduced when both direct and indirect effects of the CI on the S/Y and I/Y are considered than when only the direct effects are taken into account. (Compare the impact multipliers -0.0014 and 0.0039 with parameter estimates -0.0092 and 0.006 of equations 5 and 6 of Table 7-13 or -0.016 and 0.864 of equations 1 and 2 of the table corresponding to S/Y and I/Y, respectively.)

In summary, the evidence suggests that, whenever possible, simultaneous equation models should be preferred to single equation models.

I. Testing for Structural Change

As pointed out at the beginning of this chapter, the evidence from tables in chapter II indicates that a structual change might have occurred during fiscal year 1972/73. It, therefore, became necessary to test for the structural change.

The original sample was divided into two subsamples covering the periods 1950-1972 and 1973-1976, respectively. Since the second sample consists of only four observations on each variable, the Chow Test for structural change, rather than the dummy variable procedure, was utilized. To compute the Chow Test F statistic, the following procedure is implemented: (1) Run off the regression using the entire sample (1950-1976) and calculate the residual sum of squares (U'U); (2) Then run off the regression using the first sample (1950-1972) and calculate the residual sum of squares again $(U_1'U_1)$. The test of the null hypothesis that the additional (1972-1976) observations obey the same relation as the first (1950-1972) is given by the Chow Test statistic, $F = \{(U'U - U_1'U_1)/m\}/\{U_1'U_1/(n - K)\}$, where K is the number of regressors (including the constant), n is the size of the first sample (1950-1972) and m is the size of the second sample (1973-1976).

Table 7-14 presents results of the Chow Test for structural change in Uganda for the fiscal year 1972/73. Equations (1) and (2) of Table 7-14, equation (3) through (6) are from Table 7-3; and equations (7) through (10) are from Table 7-7 . Table 7-14 shows both the calculated Chow Test F statistics and the tabulated (5 per cent and 1 per cent critical) F statistics.

As the table shows, in five out of the ten cases tabulated, the calculated, F statistic exceeds the 1 per cent critical F value, and in three out of the remaining five cases, the calculated F statistic exceeds the 5 per cent critical F value. Thus, the calculated F statistics are significant at least at the 95 per cent level in eight out of the ten cases shown in Table 7-14. Therefore, as suspected, it appears that there was a structural change in

TABLE 7-14

TESTING FOR STRUCTURAL CHANGE DURING FISCAL YEAR 1972/73 BY MEANS OF THE CHOW TEST

Equation[1]	Calculated CHOW TEST F Value	5% CRITICAL F Value	1% CRITICAL F Value
(1) $\ln S = f_1(\ln Y, \ln FI)$	2.09	2.90	4.50
(2) $S_{pr} = f_2(Y, FI)$	3.59$^+$	2.90	4.50
(3) $S^* = f_3(Y^*, Y^t)$	4.91^{++}	3.01	4.77
(4) $S^*_{pr} = f_4(Y^*, Y^t)$	8.16^{++}	3.01	4.77
(5) $S^* = f_5(Y^*, Y^t, FI^*)$	3.79$^+$	3.06	4.89
(6) $S^*_{pr} = f_6(Y^*, Y^t, FI^*)$	6.70^{++}	3.06	4.89
(7) $\frac{S}{Y} = f_7(\frac{\Delta Y}{Y}, \frac{Y}{N}, FI, CI, (\frac{S}{Y})_{-1}, b)$	3.43$^+$	3.18	5.20
(8) $FI = f_8(\frac{S}{Y}, (\frac{\Delta Y}{Y})_{-1}, (\frac{S}{Y})_{-1}$	4.99^{++}	3.01	4.77
(9) $\frac{Y}{N} = f_9(DEN, EN, \frac{\Delta Y}{Y}, TLPR)$	1.11	3.06	4.89
(10) $\frac{I}{Y} = f_{10}(FI, (\frac{\Delta Y}{Y})_{-1}, CI, r, b)$	6.24^{++}	3.11	5.03

[1] The equations are extracted from Tables 5-4, 5-10, and 5-12.

$^+$ The relevant estimate is signficant at the 5% level of significance.

$^{++}$ The relevant estimate is significant at the 1% level of significance.

Uganda during the 1972/73 fiscal year.

The Chow Test was also used to test for structural change in fiscal year 1968/69, given the decline in the monetization ratio (MR). After all, the dummy variable analysis (equation 7-5 above) shows that the MR registered a permanent change after this period. However, the evidence (not shown here) revealed that the structural change may have been confined only to the MR. It appears, therefore, that after 1968 (but before 1973), there was no significant change in economic activity in the country, although the output of the non-monetory sector was definitely growing at a higher rate than that of the monetory sector.

That there was a structural change during the period 1972-1973 explains why the operational sample for the regression results discussed above only covered the period 1950-1972.

CHAPTER VIII

CONCLUSION

A. Summary

This study has attempted to assess the role of financial intermediaries in the saving-investment process in Uganda. This has been done in three basic stages. The part played by the financial intermediaries in promoting and mobilizing saving was studied. In addition, their role in financing investment or allocating savings amongst competing investment channels was assessed. Further, their role in the resource-drainage ("leakage") mechanism and in the monetization of Uganda's economy (that is, the transformation of the non-monetary sector of the economy) was examined. In the course of these stages, determinants of saving and investment other than financial intermediation were discussed and statistically tested; and the financial development of the country during the period as well as various institutional arrangments for the provision of different types of finance were scrutinized.

After a concise review of the structure of the economy, the nature of financial institutions in the country was discussed. The banking system is the largest component of the financial sector, owning between 50 and 60 per cent of the sector's resources. The Bank of Uganda (the central bank) has adequate control over commercial banks and, practically, all other credit institutions in the country. In its pursuit of financial policy, it can control virtually all the activities of the credit institutions. For instance, it can restrict their lending activities by imposing on them terms of lending, maximum interest rates at which they ought to lend, sectors to which they should lend, and amounts that they should lend.

As far as lending is concerned, credit institutions are, to a large extent, specialized. Commercial banks tend to specialize in short-term lending, insurance companies in medium-term and long-term lending, and government development-finance parastatal bodies and agencies in only long term lending. Further, the financial institutions are an important source of finance for the government. Acts of Parliament were passed and decrees have been promulgated to ensure that some of the institutions' funds flow to the government. Such flows are in the form of purchases of treasury bills, government stocks, tax reserve certificates, and other financial instruments issued by the government.

Both single-equation and simultaneous-equation models were formulated and estimated. The single-equation models of saving were based on the absolute income and the permanent income hypotheses.

In regard to real saving and the saving rate, it was found that their main determinants in Uganda are per capita real income, real balances (lagged one period), financial intermediation, real foreign capital inflows, taxation, and the rate of growth of real income. Saving and the saving rate vary directly with all the determinants, except real foreign capital inflows with which they vary inversely. The MPS out of real income averaged 0.17 in this study; and saving and the saving rate were found to be generally inelastic with respect to their determinants.

The main determinants of real investment and the investment rate in Uganda were found to be real income, real balances (lagged one period), and the real rate of return on capital, financial intermediation, and real foreign capital inflows. Investment or the investment rate varies directly with all the determinants, except the real return on capital, with which it is inversely correlated. The country's marginal propensity to invest was found to be 0.093. In addition, investment appears to be inelastic with respect to all its determinants except real balances. Investment tends to be elastic with respect to real balances in Uganda. Further, real balances were found to exert the greatest positive impact on real investment, while the return on capital was found to have the greatest negative effect on it.

It was also found that lagged real balances, per capita energy consumption (a proxy for per capita fixed capital), labour participation rate, population pressure on non-capital resources, as well as financial intermediation, are the main determinants of real income and per capita income in the country. In addition, the major determinants of the rate of growth of real income were found to be the saving rate, real capital inflows. and financial intermediation.

Furthermore, the evidence appeared to support the main hypothesis of this study: that financial intermediaries play an important role in the saving-investment process in Uganda. On the one hand, financial intermediation was found to be a very significant determinant of both real saving and the saving rate in Uganda. The MPS out of total financial assets (a proxy for financial intermediation) averaged about 0.15, while the d(S/Y)/dFI was about 0.65 when the ratio of real balances M_2 to income (Y) was used to proxy financial intermediation (FI).

On the other hand, financial intermediation was found also to be a very important determinant of real investment. The estimated coefficient on the FI in the investment rate equation (that is, d(I/Y)/dFI) was about 0.48 when the M /Y was used as the proxy for financial intermediation, and about 0.15 when the additive inverse of the currency ratio was used as the proxy. However, financial intermediation in Uganda also appears to be influenced by the rate of saving and the growth rate of the economy. Further, it was found that Uganda's financial infrastructure experienced remarkable growth during the period studied. In regard to monetization, the evidence was not conclusive. Financial intermediation appears to enhance monetization in Uganda. However, the relationship between financial intermediation and the monetization of the country's economy appears to be weak.

Unfortunately, data on "leakages" caused by financial intermediation in the country were inadequate. Consequently, an overall, assessment of the part played by the financial intermediaries in the resource-drainage mechanism was not possible. However, as far as the banking system is concerned the available information indicated that the system has not been a major participant in the mechanism.

Finally, it was found that financial intermediation in Uganda is both supply-leading and demand-following. It influences saving and the economy's growth rate and is, in turn, influenced by them. In addition, it was found that simultaneous equation results appear to be superior to single equation results.

B. Limitations and Qualifications

The main shortcomings of this study stem from data coverage, data accuracy, and omissions of hypothetically vital variables in the regression analyses of Chapter VII.

Data coverage was restricted to the organized money and capital markets. As the omitted institutions are relatively insignificant, their omission was not expected to affect significantly the results of the study.

Data inaccuracy is due to restricted coverage and to methods used in compiling the data. Restricted coverage implies that some of the values of variables are underestimated. The methods used may lead to inaccuracies. For example, the product of the non-monetary sector in Uganda and in other developing countries is simply estimated. However, a reading of the literature on similar studies in developing countries reveals that all such studies are plagued by this problem of data inaccuracy or inadequacy.

Lastly, as pointed out in Chapter IV, non-economic factors (like political stability and occupation) are also important determinants of saving and investment. In this study, no attempt was made to assess the impact of such factors on the saving-investment process in Uganda.

C. Policy Implications of the Study

Saving and Investment

As financial intermediation plays such a vital role in the saving-investment process in the country, it should be encouraged further, both on the extensive and intensive margins. On the extensive margin, for example, commercial banks should be encouraged to extend their branch network into the rural areas; and, on the intensive margin all credit institutions should intensify their activities and improve their efficiency. The usefulness of the bank cartel, established by the "Summary of Banking Arrangments" of 1929, should be critically evaluated. In this respect, a review of the structure of interest rates should be undertaken.

At the moment, there is no secondary capital market in the country and yet such a market may encourage development. If the presence of such a market is consistent with the politico-economic goals of the country, it should be established as soon as possible.

Further, the net effect of capital inflows (or foreign "aid" in general) needs critical examination. On the one hand, this study indicates that the capital inflows encourage domestic investment, and on the other hand, the inflows discourage domestic saving. Morever, with all types of foreign "aid," there are always strings attached. All this suggests that further research is required to assess the overall effect of capital inflows.

Statistics

Even the official annual *Statistical Abstract* and the Bank of Uganda publications do not cover financial institutions other than the banking system and the Post Office Savings Bank. The Statistics Division of the Ministry of Planning and Economic Development and the Research Department of the Bank of Uganda ought to find extra resources to enable them to collect data from, say, insurance companies, development-finance parastatal bodies, co-operative and building societies, and hire-purchase companies. It would even be better if a new publication devoted to financial statistics were founded.

Lending to the Government

As we have seen, some funds from financial institutions are diverted into financing government expenditure. This diversion can be very useful in a developing country if the government utilizes such funds to finance high-priority investment projects, or to improve the infrastructure of the economy. However, if such funds go into financing low-priority projects or celebrations, then the diversion hinders development. The basic question then is: Does the government use such funds "more efficiently" than the financial intermediaries would? This is a question policy makers and development planners should contemplate seriously.

Other Policy Implications

First, like capital inflows, the question of "leakages" needs further investigation.

Second, that saving is determined by income and that the income growth rate depends on the saving rate imply that further efforts directed towards raising income and saving in Uganda should be encouraged. The government should be recommended in this case, for, as it is evident from development plans, it has hitherto formulated policies aimed at increasing saving and income in the country over time. However, it seems extra effort is required to implement the development plans.

SELECTED BIBLIOGRAPHY

Books

Bauer, P.T. *Dissent on Development*, Student ed. London: Weidenfeld and Nicolson Co., 1976.

Berstein H., ed. *Underdevelopment and Development*. London: Penguin Books, 1973.

Binhammer, H.H. *The Development of a Financial Infrastructure in Tanzania*. Dar es Salaam: East African Literature Bureau, 1975.

Bird, R., and Oldman, O. *Readings on Taxation in Developing Countries*. Baltimore: Johns Hopkins Press, 1967.

Bosa, George R. *The Financing of Small-Scale Enterprises in Uganda*. Nairobi:Oxford University Press, 1969.

Branson, William H. *Macroeconomic Theory and Policy*, 2nd ed. New York: Harper and Row, 1979.

Cameron, Rondo, ed. *Banking and Economic Development*. New York: Oxford University Press, 1972.

Chenery, Hollis B., ed. *Studies in Development Planning*. Cambridge: Harvard University Press, 1971.

Cohen, Benjamin. *The Question of Imperialism*. New York: Monthly Review Press, 1973.

Colman, David, and Nixon, Frederick. *Economics of Change in Less Developed Countries*, A Halsted Press Book. New York: John Wiley and Sons, 1978.

Commission on Money and Credit (U.S.). *Impact of Monetary Policy*. Englewood Cliffs, New Jersey: Prentice-Hall, 1963.

Dhrymes, Phoebus J. *Econometrics: Statistical Foundations and Applications*. New York: Springer-Verlag, 1974.

Duesenberry, J. *Income, Saving, and the Theory of Consumer Behavior*. Cambridge: Harvard University Press, 1949.

Ellis, H.S., and Wallich, H.C., eds. *Economic Development for Latin America*. New York: St. Martin's Press, 1961.

Evans, Michael K. *Macroeconomic Activity: Theory, Forecasting, and Control*. Harper and Row, 1969.

Farer, Tom J., ed. *Financing African Development*. Cambridge: The M.I.T. Press, 1965.

Ferber, R., ed. *Determinants of Investment Behavior*. New York: Columbia University Press, 1967.

Frantzen, P., ed. *Current Problems of Financial Intermediaries*. Rotterdam: Rotterdam University Press, 1975.

Friedman, Milton. *A Theory of the Consumption Function*, A National Bureau of Economic Research Study. Princeton: Princeton University Press, 1957.

Goldberger, Arthur S. *Econometric Theory*. New York: John Wiley and Sons, 1964.

Goldsmith, Raymond W. *Financial Structure and Development*. New Haven: Yale University Press, 1969.

Gurley, John G., and Shaw, Edward S. *Money in a Theory of Finance*. Washington, D.C.: Brookings Institution, 1960.

Hardaker, J.B. *The Subsistence Sector in the South Pacific*. Suva, Fiji: University of the South Pacific, 1975.

Hempel, George H., and Yawitz, Jess B. *Financial Management of Financial Institutions*. Englewood Cliffs, New

Jersey: Prentice-Hall, 1977.

Henning, Charles E.; Pigott, W.; and Scott, R. *Financial Markets and the Economy*, 2nd ed. Englewood Cliffs, New Jersey: Prentice-Hall, 1978.

Higgins, Benjamin. *Economic Development: Problems, Principles, and Policies*, Revised ed. New York: W.W. Morton and Co., 1968.

Hirshman, Albert O. *The Strategy of Economic Development*. New Haven: Yale University Press, 1958.

International Bank for Reconstruction and Development. *The Economic Development of Uganda*. Baltimore: The Johns Hopkins Press, 1962.

Johnston, Jack. *Econometric Methods*, 2nd ed., International Student Ed. Tokyo: McGraw-Hill Kogakusha, 1972.

Junankar, P.N. *Investment: Theories and Evidence*, Macmillan Studies in Economics. London: The Macmillan Press, 1972.

Kay, Geoffrey. *Development and Underdevelopment: A Marxist Analysis*. London: The Macmillan Press, 1975.

Kindleberger, Charles P., ed. *The International Corporation: A Symposium*. Cambridge: The M.I.T. Press, 1970.

Krivine, David, ed. *Fiscal and Monetary Problems in Developing Countries: The Proceedings of the Third Rehovoth Conference*. New York: Praeger Publishers, 1967.

Kunihara, K., ed. *Post-Keynesian Economics*. New Brunswick: Rutgers University Press, 1954.

Lewis, W. Arthur. *Development Planning*. London: Allen and Unwin, 1966.

Livingstone, Ian, and Ord, Henry W. *An Introduction to the Economics for East Africa*. London: Heinemann Educational Books, 1968.

Maddala, G.S. *Econometrics*. London: McGraw-Hill, 1977.

Mamdani, Mahmood. *Politics and Class Formation in Uganda*. New York: Monthly Review Press, 1976.

Marlin, Peter, ed. *Financial Aspects of Development in East Africa*. Munich: Weltforum Verlag, 1970.

McLoughlin, Peter F.M. *Agriculture in East and Central Africa: An Overview*. London: Longmans Books, 1970.

McKinnon, Ronald I., ed. *Money and Finance in Economic Growth and Development*, Business Economics and Finance, Vol. 8. New York: Marcel Dekker, 1976.

McKinnon, Ronald I. *Money and Capital in Economic Development*. Washington, D.C.: Brookings Institution, 1973.

Meier, Gerard M. *Leading Issues in Economic Development*, 3rd ed. New York: Oxford University Press, 1976.

Mettrick, Hal. *Aid in Uganda--Agriculture*. London: Overseas Development Institute, 1967.

Ndegwa, Phillip. *The Common Market and Development in East Africa*. Nairobi: East African Publishing House, 1965.

Newlyn, Walter T. *Finance for Development: A Study of Sources of Finance in Uganda, with Particular Reference to Credit Creation*. Nairobi: East African Publishing House, 1968.

Newlyn, Walter T. *Money in an African Context*. Oxford University Press, 1967.

Nurkse, Ragnar. *Problems of Capital Formation in Underdeveloped Countries*, 7th ed. New York: Oxford

University Press, 1960.

Oloya, J.J. *Some Aspects of Economic Development, with Special Reference to East Africa*. Kampala: East African Literature Bureau, 1968.

Ott, David J.; Ott, Attiat F.; and Yoo, Jang H. *Macroeconomic Theory*. New York: McGraw-Hill, 1975.

Polakoff, Murray E., *et al*. *Financial Institutions and Markets*. Boston: Houghton Mifflin Co., 1970.

Radice, H., ed. *International Firms and Modern Imperialism*. London: Penguin Books, 1975.

Robinson, E.A.G., ed. *Problems in Economic Development*. New York: Macmillan and Company, 1965.

Rodney, Walter. *How Europe Underdeveloped Africa*. London: Bogle-L'Ouverture Publications, 1972; and Dar es Salaam: Tanzania Publishing House, 1972.

Schumpeter, Joseph A. *Theory of Economic Development*. New York: Oxford University Press, 1961.

Shaw, Edward S. *Financial Deepening in Economic Development*. New York: Oxford University Press, 1973.

Singh, S.K. *Development Economics: Theory and Findings*. Lexington, Massachusetts: D.C. Heath, 1972.

Smith, Warren L., and Teigen, Ronald L., eds. *Readings in Money, National Income, and Stabilization Policy*, 3rd ed. Homewood, Illinois: Richard D. Irwin, 1974.

Szentes, Tamas. *The Political Economy of Underdevelopment*. Budapest: Academiai Kiado, 1971.

Theil, Henri. *Principles of Econometrics*. New York: John Wiley and Sons, 1971.

Thomas, Babatunde D. *Importing Technology into Africa: Foreign Investment and the Supply of Technological Innovations*. New York: Praeger Publishers, 1976.

Tun Wai, U. *Financial Intermediaries and National Savings in Developing Countries*. New York: Praeger Publishers, 1972.

Whetham, E.H., and Currie, J.I., eds. *Readings in the Applied Economics of Africa, Volume 2: Macroeconomics*. Cambridge: Cambridge University Press, 1967.

Wilson, Gail. *Owen Falls: Electricity in a Developing Country*. Nairobi: East African Publishing House, 1967.

Zajadacz, Paul, ed. *Studies in Production and Trade in East Africa*. Munich: Weltforum Verlag, 1970.

Articles

Abdi, Ali, "Banking in Uganda since Independence: Comment," *Economic Development and Cultural Change* 24 (January 1976): 417-19.

Adams, Dale W. "Mobilizing Household Savings Through Rural Financial Markets," *Economic Development and Cultural Change* 26 (April 1978): 547-60.

Arowolo, Edward A. "The Development of Capital Markets in Africa with Particular Reference to Kenya and Nigeria," *IMF Staff Papers* 15 (July 1971): 420-40.

Bennett, Robert L. "Financial Innovation and Structural Change in the Early Stages of Industrialization: Mexico, 1945-49," *Journal of Finance* 18 (December 1963): 666-83.

Bhatia, Rattan J., and Khatkhate, Deena R. "Financial Intermediation, Savings Mobilization, and Entrepreneurial Development: The African Experience," *IMF Staff Papers* 22 (June 1975): 132-58.

Brillembourg, Arturo. "The Role of Savings in Flow Demand for Money: Alternative Partial Adjustment Models," *IMF Staff Papers* 25 (June 1978): 278-92.

Brunner, Karl, and Meltzer, Allan H. "The Place of Financial Intermediaries in the Transmission of Monetary Policy," *American Economic Review* 53 (May 1963): 373-84.

Chandavarkar, Anand G. "Monetization of Developing Countries," *IMF Staff Papers* 24 (November 1977): 665-721.

Chenery, Hollis B., and Eckstein, R. "Development Alternatives for Latin America," *Journal of Political Economy* 78 (Supplement to July-August 1970): 966-1006.

Chow, Gregory C. "Tests of Equality between Sets of Coefficients in Two Linear Regressions," *Econometrica* 28 (1960): 591-605.

Christian, James W., and Pagoulatos, Emillo. "Domestic Financial Markets in Developing Countries: An Econometric Analysis," *Kyklos* 26 (Fasc. 1 1973): 75-90.

Christian, James W., and Pagoulatos, Emillo. "Foreign Capital, Domestic Finance, and Savings in Developing Countries," *Economia Internazionale* 29 (May/June 1976): 81-86.

Dorrance, Graeme S. "The Instruments of Monetary Policy in Countries without Highly Developed Capital Markets," *IMF Staff Papers* 12 (July 1965): 272-79.

Eisner, Robert. "Issues in Econometric Studies of Investment: Comment," *Journal of Economic Literature* 12 (March 1974): 49-50.

Fisher, F.M. "Tests of Equality between Sets of Coefficients in Two Linear Regressions: An Expository Note," *Econometrica* 38 (1970): 361-66.

Friend, I., and Taubman, Paul. "The Aggregate Propensity to Save: Some Concepts and Their Applications to International Data," *Review of Economics and Statistics*

48 (May 1966): 113-23.

Fry, Maxwell J. "Money and Capital or Financial Deepening in Economic Development," *Journal of Money, Credit, and Banking* 10 (November 1978): 464-75.

Galbis, Vincente. "Financial Intermediation and Economic Growth in Less Developed Countries: A Theoretical Approach," *Journal of Development Studies* 13 (January 1977): 58-72.

Galbis, Vincente. "Money, Investment, and Growth in Latin America, 1961-1973," *Economic Development and Cultural Change* 27 (April 1979): 423-44.

Gershenberg, Irving. "Banking in Uganda since Independence," *Economic Development and Cultural Change* 20 (April 1972): 504-23.

Gershenberg, Irving. "Banking in Uganda since Independence," *Economic Development and Cultural Change* 24 (January 1976): 421-22.

Gershenberg, Irving. "Multinationals and Development: Commercial Banking in Uganda," *Africa Today* No. 4 (1974): 19-27.

Glentworth, G., and Wozei, M. "The Role of Public Corporations in National Development in Uganda," *The African Review* 4 (January 1972): 54-90.

Gupta, Kanhaya L. "Dependency Rates and Saving Rates: Comment," *American Economic Review* 61 (June 1971): 469-71.

Gupta, Kanhaya L. "Foreign Capital and Domestic Savings: A Test of Haavelmo's Hypothesis with Cross-Sectional Data: Comment," *Review of Economics and Statistics* 52 (May 1970): 214-16.

Gupta, Kanhaya L. Foreign Capital Inflows, Dependency Burden, and Saving Rates in Developing Countries: A Simultaneous Equation Model," *Kyklos* 28 (July 1975): 358-74.

Gupta, Kanhaya L. "On Some Determinants of Rural and Urban Saving Behaviour," *Economic Record* 46 (December 1970): 578-83.

Gupta, Kanhaya L. "Personal Saving in Developing Countries: Further Evidence," *Economic Record* 46 (June 1970): 243-49.

Gurley, John G., and Shaw, Edward S. "Financial Aspects of Economic Development," *American Economic Review* 49 (September 1955): 515-38.

Gurley, John G., and Shaw, Edward S. "Financial Intermediaries and the Savings-Investment Process," *Journal of Finance* 11 (May 1956): 257-66.

Gurley, John G., and Shaw, Edward S. "Financial Structure and Economic Development," *Economic Development and Cultural Change* 15 (April 1967): 257-68.

Howe, Charles W. "An Analysis of African Household Consumption and Financial Behaviour in Kenya and Uganda," *East African Economic Review*, New Series 4 (June 1968): 51-61.

Hyuha, A. Mukwanason. *An Overview of Ridge Regression* Paper presented at the Institute of Statistics and Applied Economics, Makerere University, Kampala; March 1979.

Hyuha, A. Mukwanason. *On the Measurement of First-Order Serial Correlation, Autocorrelation*, an M.A. Extended Essay, Department of Economics and Commerce, Simon Fraser University, Burnaby, B.C.; April 1976.

Johnston, D.W., and Chiu, J. "The Saving-Income Relation in Underdeveloped and Developed Countries," *Economic Journal* 78 (June 1968): 321-33.

Jorgenson, Dale W. "Econometric Studies of Investment Behavior: A Survey," *Journal of Economic Literature* 9 (December 1971): 1111-47.

Jorgenson, Dale W., and Stephenson, J.A. "Issues in the

Neoclassical Theory of Investment Behavior," *Review of Economic Studies* 10 (August 1969): 346-53.

Kelley, A.C., and Williamson, J.G. "Household Saving Behaviour in Developing Countries: The Indonesian Case," *Economic Development and Cultural Change* 16 (April 1968): 385-403.

Klein, Lawrence R. "Issues in Econometric Studies of Investment," *Journal of Economic Literature* 12 (March 1974): 43-49.

Lall, Sanjaya. "Less-Developed Countries and Private Foreign Direct Investment: A Review Article," *World Development* 2 (April-May 1974): 43-48.

Laumas, Prem S. "Monetization, Economic Development, and the Demand for Money," *Review of Economics and Statistics* 60 (November 1978): 614-18.

Leff, Nathaniel H. "Dependency Rates and Savings Rates," *American Economic Review* 59 (December 1969): 886-96.

Leff, Nathaniel H., and Sato, Kazuo. "A Simultaneous Equation Model of Savings in Developing Countries," *Journal of Political Economy* 83 (December 1975): 1217-28.

Lewis, W. Arthur. "Economic Development with Unlimited Supplies of Labour," *Manchester School* 22 (May 1954): 139-91.

Lewis, W. Arthur. "Unlimited Supplies of Labour: Further Notes," *Manchester School* 26 (January 1958): 1-32.

Loxley, John. *Financial Intermediaries and Their Role in East Africa*, Makerere Institute of Social Research, EDRP No. 410, 1967.

Mikesell, Raymond F., and Zinser, James E. "The Nature of the Savings Function in Developing Countries: A Survey of the Theoretical and Empirical Literature," *Journal of Economic Literature* 11 (March 1973): 1-26.

Modigliani, Franco, and Ando, A. "The Life-Cycle Hypothesis of Saving: Aggregate Implications and Tests," *American Economic Review* 53 (1963): 55-84.

Modigliani, Franco, and Miller, M.H. "The Cost of Capital, Corporation Finance, and the Theory of Investment," *American Economic Review* 48 (June 1958): 261-97.

Modigliani, Franco, and Miller, M.H. "Some Estimates of the Cost of Capital to the Electric Utility Industry, 1954-57," *American Economic Review* 56 (June 1966): 333-91.

Newlyn, Walter T. *Comparative Analysis of Central Bank Acts*, Makerere Institute of Social Research, EDRP No. 101; 1968.

Nsekela, Amon J. "The Role of Commercial Banking in Building a Socialist Tanzania," *The African Review* 4 (1974): 25-42.

Park, Yung Chul. "The Role of Money in Stabilization Policy in Developing Countries," *IMF Staff Papers* 20 (July 1973): 379-430.

Papanek, Gustav F. "Aid, Foreign Private Investment, Savings, and Growth in Less Developed Countries," *Journal of Political Economy* 81 (January/February 1973): 120-30.

Patrick, Hugh T. "Financial Development and Economic Growth in Underdeveloped Countries," *Economic Development and Cultural Change* 14 (January 1966): 174-89.

Please, Stanley. "Savings Through Taxation--Mirage or Reality," *Finance and Development* 4 (March 1967): 1-10.

Rahman, M.A. "Foreign Capital and Domestic Savings: A Test of Haavelmo's Hypothesis with Cross-Country Data," *Review of Economics and Statistics* 50 (February 1968): 137-38.

Smith, Gary, and Starnes, William. "A Short-Run Two-Sector Model with Immobile Capital," *Journal of Money, Credit,* *and Banking* 11 (February 1979): 47-67.

Snyder, Donald W. "Econometric Studies of Household Saving Behaviour in Developing Countries: A Survey," *Journal of Development Studies* 10 (January 1974): 139-53.

Sweezy, Paul M. "Multinational Corporations and Banks," *Monthly Review*, An Independent Socialist Magazine 29 (January 1978): 1-9.

Thirlwall, A. P. "Inflation and the Saving Ratio Across Countries," *Journal of Development Studies* 10 (January 1974): 154-73.

Tun Wai, U. "Interest Rates Outside the Organized Money Markets in Underdeveloped Countries," *IMF Staff Papers* 3 (August 1956): 80-125.

Tun Wai, U. "Interest Rates in the Organized Money Markets of Underdeveloped Countries," *IMF Staff Papers* 4 (December 1957): 249-78.

Vinod, Hrishikesh D. "A Survey of Ridge Regression and Related Techniques for Improvement over Ordinary Least Squares," *Review of Economics and Statistics* 60 (February 1978): 121-31.

Waldorf, William H. "A Comparison of Savings Rates in Uganda: Africans, Asians, ans Europeans," *Journal of Development Studies* 13 (April 1977): 229-37.

Williamson, J.G. "Personal Saving in Developing Nations: An Inter-temporal Cross-Section from Asia," *Economic Record* 44 (June 1968): 194-210.

Yoo, Jang H. "The Role of Money as a Conduit of Savings and Investment in the UDCs," *Kyklos* 30 (November 1977): 520-25.

Official Publications, Pamphlets, and Reports

Arain, Shafiq. *The Report of the Committee of Inquiry into the Affairs of All Co-operative Unions in Uganda.*

Kampala: Government Printer, 1967.

Bank of Uganda. *A Review of the Uganda Economy*. Kampala: Sapoba Bookshop for Bank of Uganda, 1979.

Bank of Uganda. *Annual Reports*, 1966 through 1972.

Bank of Uganda. *Banking in Uganda*, ed. J.M. Mubiru. Kampala: Consolidated Printers for Bank of Uganda, 1970.

East African Community, Statistics Division. *Quarterly Economic and Statistical Review*, various issues: 1950-1976.

Gurley, John G. *Liquidity and Financial Institutions in the Post-War Period*. Study Paper No. 4, U.S. Joint Economic Committee, 86th Congress, 1st Session, January 25, 1960.

International Bank for Reconstruction and Development (World Bank). *World Tables 1976*. Washington, D.C., 1976.

International Labour Organization (ILO). *Year Book of Labour Statistics*. International Labour Office, Geneva; various issues.

International Monetary Fund (IMF). *International Financial Statistics*, various issues. Washington, D.C., 1969-1980.

Modigliani, Franco. *The Life-Cycle Hypothesis of Saving: Part III*. Paper presented at the First Congress of the Econometric Society, Rome, 1965.

National Insurance Corporation (Uganda). *Annual Reports*, various issues:1965-1973.

Portacio, Nila. *Determinants of Saving in the Philippines*. An M.A. Non-Thesis Paper. Department of Economics, The University of Alberta, Edmonton, 1977.

Savary, James R. *Monetary Policy, Saving, and Income in Egypt*. A Ph.D. Thesis. Department of Economics, The University of Alberta, Edmonton, 1973.

Uganda Government. *Background to the Budget*, annual issues, 1964-1973.

Uganda Government. *Development in Uganda, 1947 to 1955-56*. Ed. Sir Douglas Harris. Entebbe: Government Printer, 1960.

Uganda Government. *Laws of Uganda*. Ordinances (1950-1961), Acts of Parliament (1962-1970), and Decrees (1971-1978). Entebbe: Government Printer, 1950-1978.

Uganda Government. *The Real Growth of the Economy of Uganda, 1954-1962*. Entebbe: Government Printer, 1964.

Uganda Government. *Statistical Abstracts*, annual issues. Entebbe: Government Printer, 1957-1973.

Uganda Government. *Work for Progress: Uganda's Second Five-Year Plan, 1966-1971*. Entebbe: Government Printer, 1966.

Uganda Government. *Uganda's Plan III: Third Five-Year Development Plan, 1971/2-1975/6*. Entebbe: Government Printer, 1971.

Uganda Government. *The Action Programme: A Three-Year Economic Rehabilitation Plan, 1977/78-1979/80. Entebbe: Government Printer, 1977.*

Uganda-American Insurance Company. Annual Reports, various issues: 1965-1973; Kampala, Uganda.

Uganda Development Corporation (UDC). *Annual Reports and Accounts*, various issues. Kampala; 1965-1973.

United Kingdom, Her Majesty's Stationery Office. *Commonwealth Development and its Financing: 9. Uganda*. London, 1966.

United Nations, Department of Economic and Social Affairs. *Compendium of Social Statistics*. Statistical Papers, Series K, No. 3; New York, 1967.

United Nations, Department of Economic and Social Affairs. *World Energy Supplies, 1950-1974*. Statistical Papers, Series J, No. 19; New York, 1976.

United Nations, Department of Economic and Social Affairs. *World Energy Supplies, 1977*. Statistical Papers, Series J, No. 21; New York, 1978.

United Nations. *U.N. Statistical Yearbook*, annual issues. New York; 1970-1975.

APPENDIX A1:
MAIN DATA SOURCES

TABLE A1-1

MAJOR SOURCES OF THE DATA USED IN THIS STUDY

DATA	SOURCE
1. Gross Domestic Product (GDP) 2. Gross Fixed Capital Formation (GFCF) 3. Consumer Price Index (CPI) 4. Population (N)	All from IMF, *International Financial Statistics*, various issues. Data counterchecked by use of Uganda Government, *Annual Statistical Abstracts*, 1957-1971
5. Government Saving (Sg) 6. Annual Average Loan Yield (i) 7. Cotton and Coffee Price Assistance Funds 8. Post Office Savings Bank Balances	1. *Annual Statistical Abstracts*, various issues. Counterchecked through: 2. East African Community, *Economic and Statistical Review*, various issues.
9. Total Assets for Bank of Uganda, Commercial banks and the Uganda Development Bank (UDB) 10. Money Supply (M_1) 11. Time and Savings Deposits(TD) 12. Treasury Bills 13. Government Stocks 14. Tax Reserve Certificates 15. East African Currency Board (EACB) assets/liabilities	Bank of Uganda publications: 1. *Annual Reports*, 1967/68-1971/72 2. *A Review of the Economy of Uganda* (March 1979) 3. *Quarterly Bulletin of Statistics*, various issues. PLUS personal discussions and research with personnel in the 4. Research and Statistical Dept. of the Bank
16. Balance of Payments Data	1. 1950-59: World Bank, *The Economic Development of Uganda* (Baltimore: Johns Hopkins Press, 1962) 2. 1960-66: *Annual Statistical Abstracts*, various issues. 3. 1966-1970: Uganda Government, *The Action Programme*, *op.cit.* 4. 1971-1976: Bank of Uganda, *A Review of the Economy of Uganda*
17. Uganda Development Corporation assets/liabilities 18. Insurance Companies assets/liabilities	1. Annual Reports of the institutions 2. Personal Contacts with the Accounting Departments of the institutions
19. Uganda Credit and Savings Bank assets/liabilities	George Bosa, *The Financing of Small Businesses in Uganda*.

TABLE A1-2

SOME DATA USED IN THIS STUDY[1]

YEAR	GDP	GDPC	M1	GLY	BORR	DERR	DEN	EN	BPCAB
1950	1432.00	2237.00	362.900	4.00000	7.84000	2.86000	30.7403	17.0000	176.000
1951	1928.00	3084.00	389.500	3.50000	7.86000	2.86000	31.2225	16.0000	434.000
1952	2154.00	3423.00	562.700	3.50000	7.90000	2.86000	32.9705	18.0000	394.000
1953	1884.00	3046.00	482.000	3.50000	7.96000	2.86000	33.8143	25.0000	110.000
1954	2208.00	3798.00	554.900	3.50000	7.96000	2.86000	34.6582	23.0000	218.000
1955	2803.60	4067.00	569.000	3.50000	8.00000	2.86000	35.5623	27.0000	38.0000
1956	2831.60	4272.00	529.300	3.86000	8.00000	2.86000	36.4664	27.0000	88.0000
1957	2934.40	4452.00	489.100	3.86000	8.00000	2.86000	37.3706	28.0000	158.000
1958	2936.00	4483.00	505.000	3.86000	8.01000	2.86000	40.3843	31.0000	190.000
1959	2979.40	4711.00	486.200	3.86000	8.02000	2.86000	42.7953	29.0000	138.000
1960	3042.50	4863.00	441.600	4.48000	8.01000	2.86000	45.5077	30.0000	181.000
1961	3128.30	4767.00	472.000	4.65000	8.02000	2.86000	46.6529	28.0000	80.0000
1962	3133.30	4803.00	503.100	4.89000	8.02000	2.86000	47.8584	30.0000	29.0000
1963	3516.90	5272.00	499.100	4.91000	8.05000	2.86000	49.1242	30.0000	160.000
1964	3902.10	5516.00	644.300	4.90000	8.07000	2.86000	50.3900	33.0000	260.000
1965	4456.10	5787.00	735.600	4.96000	8.09000	2.86000	51.7160	39.0000	-34.0000
1966	5978.30	6119.00	674.000	5.04000	8.11000	2.86000	53.1024	45.0000	-108.500
1967	6621.50	6296.00	758.000	5.03000	8.12000	2.86000	54.5490	48.0000	-72.2000
1968	6626.00	6459.00	864.600	5.15000	8.12000	2.86000	56.0558	56.0000	-22.0000
1969	7479.00	7171.00	965.200	6.12000	8.05000	2.86000	57.5627	65.0000	-43.0000
1970	8528.00	7279.00	1103.50	6.24000	8.07000	2.86000	59.1299	74.0000	145.100
1971	9316.00	7492.00	1131.70	6.30000	8.15000	2.86000	61.0587	75.0000	-612.100
1972	10367.0	7542.00	1517.80	6.31000	8.81000	3.17000	63.0478	69.0000	116.300
1973	12953.0	7496.00	2126.00	6.5[illegible]	8.82000	3.17000	65.1574	61.0000	303.400
1974	16025.0	7509.00	2910.00	6.7[illegible]000	8.80000	3.17000	67.3273	59.0000	-172.100
1975	19028.0	7357.00	3149.80	6.80000	8.94000	3.17000	69.6177	55.0000	-412.700
1976	24387.0	7411.00	3587.00	7.00000	9.05000	3.17000	71.9685	46.0000	355.500

NOTATION: GDP = Gross Domestic Product at current prices; GDPC = Gross Domestic Product at 1966 prices; M1 = Money Supply narrowly defined; GLY = Government Loan Yield, the average rate of return on government loans; BORR = the average borrowing rate, that is, the average bank lending rate; DERR = The Deposit rate, the average of the rate of interest paid by commercial banks as well as the Post Office Saving Bank on all types of deposits; DEN = population density for arable and urban areas; EN = per capita commercial energy consumption in coal equivalents; and BPCAB = balance on the current account of the balance of payments, including unrequited transfers.

[1] GDP, GDPC, M1, and BPCAB were measured in millions of shillings; DEN was measured kilogrammes; DEN is in terms persons per square Kilometre; and the rest of the variables were measured as percentages.

APPENDIX A2:
SINGLE EQUATION MODELS: REGRESSION RESULTS BASED ON NOMINAL VARIABLES

APPENDIX A2

In this appendix, the results based on nominal variables are presented. Specifically, an attempt is made obtain the determinants of nominal saving and nominal investment in Uganda. As mentioned in the text, many studies employ nominal, rather than real, variables in running off regressions. So, this appendix will, among other things, provide a frame of comparison of our results with those from such studies.

Determinants of Nominal Saving

The Absolute Income Hypothesis

As Table A2-1 shows, current income (P[illegible]), financial intermediation (F), the price level (P), nominal foreign capital inflows (PCI), and taxation (PT) are the main determinants of nominal saving in Uganda. Nominal saving varies directly with all these variables, except the capital inflows with which it varies inversely. The coefficient estimates associated with all these variables are statistically significant at the 95 per cent level.

The coefficient estimate on R, the nominal rate of interest, is, however, insignificant at the 90 per cent level throughout the equations included in the table. The possible reasons for the statistical insignificance of this variable have already been discussed in the text.

TABLE A2-1

EMPIRICAL DETERMINANTS OF NOMINAL SAVING IN UGANDA: THE ABSOLUTE INCOME HYPOTHESIS, 1950-1972

$$\begin{array}{lllll} (1)\quad PS = & -329.3 & +\ 0.200PY & & R^2 = 0.7133 \\ & (-1.32) & (4.52) & & D\text{-}W = 2.21 \end{array}$$

$$\begin{array}{llllll} (2)\quad PS = & -54.2 & +\ 0.093PY & +\ 0.115F & & R^2 = 0.7718 \\ & (-0.23) & (1.57) & (2.18) & & D\text{-}W = 2.17 \end{array}$$

$$\begin{array}{llllll} (3)\quad PS = & -68.9 & +\ 0.096PY & +\ 0.112F & +\ 1.65R & R^2 = 0.7738 \\ & (-0.28) & (1.54) & (2.03) & (0.41) & D\text{-}W = 2.17 \end{array}$$

$$\begin{array}{llll} (4)\quad PS = & -2{,}733.5 & -\ 0.664PCI & R^2 = 0.9329 \\ & (-2.16) & (-10.04) & D\text{-}W = 1.67 \end{array}$$

$$\begin{array}{llll} (5)\quad PSpr = & -1{,}385.9 & +\ 0.397PY & R^2 = 0.8888 \\ & (-2.61) & (4.61) & D\text{-}W = 1.70 \end{array}$$

$$\begin{array}{lllll} (6)\quad PSpr = & -471.3 & +\ 0.118PY & +\ 0.235F & R^2 = 0.9499 \\ & (-2.42) & (2.47) & (5.85) & D\text{-}W = 2.10 \end{array}$$

$$\begin{array}{llllll} (7)\quad PSpr = & -455.6 & +\ 0.114PY & +\ 0.238F & -\ 0.848R & R^2 = 0.9502 \\ & (-2.35) & (2.36) & (5.78) & (-0.29) & D\text{-}W = 2.12 \end{array}$$

$$\begin{array}{llllll} (8)\quad PSpr = & -900.8 & +\ 0.256py & +\ 0.286F & +\ 1.74P & R^2 = 0.9742 \\ & (-7.62) & (11.05) & (4.89) & (3.89) & D\text{-}W = 2.19 \end{array}$$

$$\begin{array}{llll} (9)\quad PSpr = & -1{,}466.9 & -\ 0.416PCI & R^2 = 0.9420 \\ & (-1.95) & (-4.01) & D\text{-}W = 1.75 \end{array}$$

$$\begin{array}{llll} (10)\quad PS = & 258.5 & +\ 0.622PT & R^2 = 0.8223 \\ & (4.81) & (10.53) & D\text{-}W = 1.85 \end{array}$$

$$\begin{array}{llll} (11)\quad \ln PS = & -8.77 & +\ 1.61\ \ln PY & R^2 = 0.8480 \\ & (-3.56) & (4.29) & D\text{-}W = 1.92 \end{array}$$

$$\begin{array}{lllll} (12)\quad \ln PSpr = & -15.7 & +\ 2.21\ \ln PY & +\ 0.391\ \ln F & R^2 = 0.9087 \\ & (-4.92) & (4.59) & (2.24) & D\text{-}W = 1.72 \end{array}$$

NOTE: Students t-statistics are enclosed in parentheses below each coefficient estimate.

The Permanent Income Hypothesis

Table A2-2 presents results based on the permanent income hypothesis. As the table shows, permanent saving (PS*) appears to be determined by permanent nominal income (PY*) and permanent financial intermediation (F*). Transitory income (PYT) appears to be statistically insignificant in the determination of permanent nominal saving; so does the permanent nominal rate of interest (R*).

A comparison of Table 7-6 of Chapter VII with Table A2-2 reveals that the results based on real variables are better than those based on nominal variables as far as the permanent income hypothesis is concerned. This aspect of the results suggests that future econometric studies of saving in developing countries should employ real, rather than, nominal variables, especially insofar as the permanent income hypothsis is concerned.

Determinants of Nominal Investment

The results of regressing nominal investment on changes in nominal income (DPY), the nominal rate of interest (R), financial intermediation (F), nominal foreign capital inflows (PCI), and the rate of expected inflation (DP/P)* are presented in Table A2-3. As Table A2-3 shows, the main determinants of nominal investment in Uganda appear to be the nominal income changes, capital inflows, and the expected rate of inflation. Nominal investment appears to vary directly with all these variables, as hypothesized.

TABLE A2-2

EMPIRICAL DETERMINANTS OF NOMINAL SAVING IN UGANDA: THE PERMANENT INCOME HYPOTHESIS, 1950-1972

$$\begin{array}{llllll}
(1)\quad PS^* = & -734.4 & +\ 0.264PY^* & -\ 0.113PY^t & & R^2 = 0.9449 \\
 & (-3.52) & (7.43) & (-0.66) & & D\text{-}W = 2.36
\end{array}$$

$$\begin{array}{llllll}
(2)\quad PS^* = & -484.6 & +\ 0.321PY^* & +\ 0.047PY^t & +\ 0.124F^* & -\ 129.4R^* \\
 & (-3.54) & (5.89) & (0.34) & (3.09) & (-1.61)
\end{array}$$

$$R^2 = 0.9785 \qquad D\text{-}W = 2.25$$

$$\begin{array}{llllll}
(3)\quad PS^* = & -665.5 & +\ 0.245PY^* & -\ 0.092PY^t & +\ 0.014F^* & R^2 = 0.9451 \\
 & (-2.38) & (3.56) & (-0.48) & (0.27) & D\text{-}W = 2.31
\end{array}$$

$$\begin{array}{llllll}
(4)\quad PSpr^* = & -1{,}029.0 & +\ 0.247PY^* & -\ 0.178PY^t & +\ 0.164F^* & R^2 = 0.9882 \\
 & (-4.37) & (4.53) & (-1.37) & (4.40) & D\text{-}W = 1.97
\end{array}$$

$$\begin{array}{llllll}
(5)\quad PSpr^* = & -821.4 & +\ 0.276PY^* & -\ 0.164PY^t & +\ 0.178F^* & -\ 80.6R^* \\
 & (-3.94) & (3.72) & (-1.21) & (4.90) & (-0.97)
\end{array}$$

$$R^2 = 0.9886 \qquad D\text{-}W = 1.97$$

$$\begin{array}{lllll}
(6)\quad PSpr^* = & -193.8 & +\ 0.248PY^* & -\ 0.120PY^t & R^2 = 0.9689 \\
 & (-2.27) & (5.78) & (-0.79) & D\text{-}W = 1.34
\end{array}$$

NOTE: Students t-statistics are enclosed in parentheses below each coefficient estimate.

TABLE A2-3

EMPIRICAL DETERMINANTS OF NOMINAL INVESTMENT IN UGANDA, 1950-1972

$$(1)\quad PI = \underset{(-1.60)}{-42{,}953.1} + \underset{(0.13)}{0.010\Delta PY} \qquad \begin{matrix} R^2 = 0.8997 \\ D\text{-}W = 2.23 \end{matrix}$$

$$(2)\quad PI = \underset{(2.41)}{5{,}339.0} + \underset{(2.50)}{0.150\Delta PY} \qquad \begin{matrix} R^2 = 0.9271 \\ D\text{-}W = 2.24 \end{matrix}$$

$$(3)\quad PI = \underset{(2.07)}{2{,}505.6} - \underset{(-0.86)}{74.4R_{-1}} \qquad \begin{matrix} R^2 = 0.9042 \\ D\text{-}W = 1.98 \end{matrix}$$

$$(4)\quad PI = \underset{(2.83)}{1.721.3} + \underset{(3.27)}{0.204\left(\frac{P}{P}\right)^{*}} \qquad \begin{matrix} R^2 = 0.9396 \\ D\text{-}W = 1.94 \end{matrix}$$

$$(5)\quad PI = \underset{(-1.97)}{-1{,}932.8} + \underset{(5.24)}{0.354PCI} \qquad \begin{matrix} R^2 = 0.9637 \\ D\text{-}W = 1.63 \end{matrix}$$

$$(6)\quad PI = \underset{(2.26)}{1{,}428.8} + \underset{(2.45)}{0.158\Delta PY} + \underset{(0.63)}{0.031F} \qquad \begin{matrix} R^2 = 0.9255 \\ D\text{-}W = 2.14 \end{matrix}$$

$$(7)\quad PI = \underset{(2.11)}{1{,}666.2} + \underset{(1.65)}{0.098\Delta PY} + \underset{(0.18)}{14.3R_{-1}} + \underset{(2.52)}{0.166\left(\frac{\dot{P}}{P}\right)^{*}} \qquad \begin{matrix} R^2 = 0.9491 \\ D\text{-}W = 2.03 \end{matrix}$$

$$(8)\quad PI = \underset{(2.32)}{1{,}676.9} + \underset{(0.41)}{0.028\Delta PY_{-1}} + \underset{(1.62)}{0.110\Delta PY_{-2}} + \underset{(0.19)}{0.013F} + \underset{(2.46)}{0.167\left(\frac{P}{P}\right)^{*}}$$

$$R^2 = 0.9496 \qquad D\text{-}W = 2.05$$

NOTE: Students t-statistics are enclosed in parentheses below each estimate.

LEAF 252 OMITTED IN PAGE NUMBERING.

The second lag in the variable DPY proved to be the most significant among other lags in the variable (up to three were tried). The rate of interest and the proxy for financial intermediation were not significant.

A Comparison of Results from This Study with Results from Other Related Studies

Table A2-4 presents some results from studies of saving behaviour in developing countries vis-a-vis results from this study. The results are based on the absolute income hypothesis. As the table shows, our results compare favourably with results from other related studies.

A comparison of results applying the permanent income hypothesis on developing countries and counterpart results from this study has already been undertaken in the text.

Finally, the results based on nominal variables are similar to those based on real variables at least as far as sign predictions are concerned.

TABLE A2-4

THE ABSOLUTE INCOME HYPOTHESIS: SAVING IN UGANDA COMPARED TO SAVING IN SOME OTHER DEVELOPING COUNTRIES

Dependent Var.	Country	Period	Constant	Y	ln Y	$\bar{R}^2$	D.W.
S	Argentina	1950-68	-100.82 (-5.07)	0.294 (13.99)	—	0.915	1.51
	Brazil	1950-67	4.15 (0.60)	0.140 (14.67)	—	0.925	2.41
	Columbia	1950-68	0.73 (1.75)	0.151 (8.36)	—	0.793	1.18
	Panama	1960-68	-59.95 (-3.02)	0.238 (6.96)	—	0.856	1.53
	Paraguay	1962-70	-4.76 (-1.62)	0.190 (3.86)	—	0.630	1.88
	Peru	1950-68	4.67 (3.41)	0.122 (6.10)	—	0.668	0.96
	Venezuela	1950-68	1.41 (4.45)	0.186 (13.62)	—	0.911	1.36
	UGANDA	1950-73	-329.3 (-1.32)	0.200 (4.52)	—	0.863	1.79
ln S	Argentina	1950-68	-5.98 (-6.77)	—	1.63 (12.55)	0.903	1.54
	Brazil	1950-67	-1.78 (-3.61)	—	0.98 (12.83)	0.960	2.40
	Columbia	1950-68	-1.24 (-4.40)	—	0.85 (9.36)	0.828	1.11
	Mexico	1950-67	-3.09 (-8.29)	—	1.22 (16.13)	0.938	1.53
	Peru	1950-68	-0.30 (-0.75)	—	0.68 (6.98)	0.726	1.06
	Venezuela	1950-68	-0.60 (-3.41)	—	0.75 (13.06)	0.904	1.30
	UGANDA	1950-73	-8.77 (-3.56)	—	1.61 (4.29)	0.843	1.92

Source: Mikesell and Zinser, "The Nature of the Savings Function in Developing Countries," op.cit., Tables 2 and 3, p. 9.

NOTE: Students t-statistics are enclosed in parentheses below each estimate.